

## TERMINAL EQUIPMENT VERIFICATION SUMMARY

Report No. **HK08041614-1**☐ Electric household products☒ ITE☐ Other \_\_\_\_\_

Model : CL-3337				Applicant: Xingtel Xiamen Electronics Co., Ltd. Xingtel Building, Chuangxin Road, Torch Hi-Tech Industrial District, Xiamen, China			
Product Description : DECT Phone				Sample Receipt Date: April 23, 2008			
<input checked="" type="checkbox"/> 1 <sup>st</sup> TEST				ALL TESTS WERE CONDUCTED IN ACCORDANCE WITH:  * ETSI ES 203 021-1 v2.1.1 (2005-08) * ETSI ES 203 021-2 v2.1.2 (2006-01) * ETSI ES 203 021-3 v2.1.2 (2006-01) * TBR 38 : 1998			
<input type="checkbox"/> 2 <sup>nd</sup> TEST (after modification)							
Test Result	ok	not ok	See Remark	Test Result	ok	not ok	See Remark
ETSI ES 203 021-1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ETSI ES 203 021-3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ETSI ES 203 021-2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TBR 38 : 1998	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When determining the test conclusion, the Measurement Uncertainty of test has been considered.							

**Prepared and Checked by:****Approved By:****Sign On File****Cheung Ho Yin, Danny  
Engineer****Leung Wai Leung, Tommy  
Senior Manager**May 10, 2008 **Date**

- The test report only allows to be revised within three years from its original issued date unless further standard or the requirement was noticed.
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**Results Conclusion  
(with Justification)**

RE: Terminal Equipment Testing On the DECT Phone,  
Model: CL-3337

On April 24-29, 2008, we tested the DECT Phone, Model: CL-3337, to determine if it was in compliance with the relevant standards as marked on the Verification Summary. We found that the unit met the requirement of ETSI ES 203 021-1, ETSI ES 203 021-2 and ETSI ES 203 021-3 and TBR 38 standards when tested as received.

The test results of ETSI ES 203 021-1, ETSI ES 203 021-2, and ETSI ES 203 021-3 and TBR 38 were included in Appendix 1 of 52 pages and 2 of 36 pages respectively. Please address all questions and comments concerning this report to Cheung Ho Yin, Danny, Engineer, or Leung Wai Leung, Tommy, Senior Manager.

The production units are required to conform to the initial sample as received when the units are placed on the market.

# TEST REPORT

**ACCORDING TO:**

**ETSI ES 203 021 -1 V2.1.1 (2005-08)**

**ETSI ES 203 021 -2 V2.1.2 (2006-01)**

**ETSI ES 203 021 -3 V2.1.2 (2006-01)**

**Access and Terminals (AT);**

**Harmonized basic attachment requirements for Terminals for connection to  
analogue interfaces of the Telephone Networks;**

**Update of the technical contents of TBR 021, EN 301 437, TBR 015, TBR 017;**

**FOR:**

**CL-3337**

**DECT Phone**

**This test report shall not be reproduced in any form except in full without the written approval of the Test Laboratory.**



Table of contents

1 Client information ..... 3

2 Equipment Under Test ..... 3

3 Manufacturer information ..... 3

4 Test project performance ..... 3

5 Test report summary ..... 4

6 EUT description ..... 5

7 Test laboratory description ..... 5

8 Test equipment used ..... 5

9 Requirement conditions table ..... 6

10 Test results summary ..... 7

11 Detailed test results ..... 9



## 1 Client information

**Client name:** Xingtel Xiamen Electronics Co., Ltd.  
**Address:** Xingtel Building, Chuangxin Road, Torch Hi-Tech, Industrial District, Xiamen, China  
**Telephone:** 86-592-5625929  
**Fax:** 86-592-6037860  
**E-mail:** [belinda@xingtel.com](mailto:belinda@xingtel.com)  
**Contact name:** Simon Liu

## 2 Equipment Under Test

**Product name:** N/A  
**Product type:** DECT Phone  
**Model(s):** CL-3337  
**Serial number:** N/A  
**Receipt date** 4/23/2008

## 3 Manufacturer information

**Manufacturer name:** Xingtel Xiamen Electronics Co., Ltd.  
**Address:** Xingtel Building, Chuangxin Road, Torch Hi-Tech, Industrial District, Xiamen, China  
**Telephone:** 86-592-5625929  
**Fax:** 86-592-6037860  
**E-Mail:** [belinda@xingtel.com](mailto:belinda@xingtel.com)  
**Contact name:** Simon Liu

## 4 Test project performance

**Project ID:** HK08041614-1  
**Location:** Intertek Testing Services Hong Kong Ltd. 2/F, Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong  
**Test started:** 4/24/2008  
**Test completed:** 4/29/2008  
**Test specification(s):** ETSI ES 203 021 -1 V2.1.1 (2005-08)  
ETSI ES 203 021 -2 V2.1.2 (2006-01)  
ETSI ES 203 021 -3 V2.1.2 (2006-01)  
Access and Terminals (AT);  
Harmonized basic attachment requirements for Terminals for connection to analogue interfaces of the Telephone Networks;  
Update of the technical contents of TBR 021, EN 301 437, TBR 015, TBR 017;  
**Test suite:** ETSI ES 203 021 (Analog TE)



## 5 Test report summary

Testing was completed against all relevant requirements of the test standard. The results obtained indicate that the product under test complies in full with the requirements tested.

The test results relate only to the items tested.

A summary of the test status of the product under test with respect to each test requirement of the standard is provided in section 10 on page 7 of this report.

Detailed test results are presented in section 11 following page 8 of this report.

	Name and Title	Date	Signature
<b>Tested by:</b>	Cheung Ho Yin, Danny Engineer	29 April, 2008	Sign On File
<b>Approved by:</b>	Leung Wai Leung, Tommy Senior Manager	29 April, 2008	Sign On File



## 6 EUT description

DECT Phone



## 7 Test laboratory description

Intertek Testing Services Hong Kong Ltd.

## 8 Test equipment used

Description	Model	S/N	Hardware Rev.	Software Rev.	Last Calibration
Telecom Conformance Analyzer	Hermon Laboratories TCA 8200	8750	A4.04	2.2.35	12/7/2006 04:10:34



## 9 Requirement conditions table

Condition	Applies
Is the TE intended the connection to the PSTN?	Yes
Is the TE intended to have a connection to earth?	No
Is the TE intended to be connected as a single terminal?	No
Is the TE intended to be in loop state?	Yes
Is the TE intended for call answer?	Yes
Is the TE intended for call set-up?	Yes
Is the TE intended for dialling with DTMF?	Yes
Is the TE intended for automatic dialling without dial tone detection?	No
Is the TE intended for automatic dialling with dial tone detection?	No
Is the TE intended for use in receiving mode?	Yes
Is the TE intended for use in transmitting mode?	Yes
Is the TE only intended to function on lines that provide more than 18mA of line current?	No
Is the TE intended for making internally generated automatically repeated call attempts?	No
Is the TE intended for automatically controlled signalling tone duration?	Yes
Is the TE intended for automatically controlled signalling pause duration?	Yes
Is the TE intended for Pulse Dialing?	No
Is the TE intended for Register Recall?	No
Is the TE able to go off-hook during a ringing pulse?	No
Is the TE intended to interwork on a low voltage line?	No





## 10 Test results summary

Test	Status
<b>ETSI ES 203 021-2 V2.1.2 (2006-01)</b>	
<b>4.1 Impedance unbalance about earth</b>	
4.1.1 Quiescent state	Not required
<b>4.1.2 Loop steady state</b>	
4.1.2.1 Longitudinal conversion loss	Not required
4.1.2.1 Longitudinal conversion loss (loop current > 18 mA)	Not required
4.1.2.2 Output signal balance	Not required
4.1.2.2 Output signal balance (loop current > 18 mA)	Not required
<b>4.2 Sending level limitations</b>	
4.2.1 Mean sending level	Pass
4.2.1 Mean sending level (loop current > 18 mA)	Not required
4.2.2 Instantaneous voltage	Pass
4.2.2 Instantaneous voltage (loop current > 18 mA)	Not required
4.2.3 Sending level in a 10 Hz bandwidth	Pass
4.2.3 Sending level in a 10 Hz bandwidth (loop current > 18 mA)	Not required
<b>4.2.4 Sending level between 4,3 kHz and 200 KHz</b>	
4.2.4.1 Sending level between 4,3 kHz and 200 KHz during DTMF dialling	Pass
4.2.4.1 Sending level between 4,3 kHz and 200 KHz during DTMF dialling (loop current > 18 mA)	Not required
4.2.4.2 Sending level between 4,3 kHz and 200 KHz during communication	Pass
4.2.4.2 Sending level between 4,3 kHz and 200 KHz during communication (loop current > 18 mA)	Not required
<b>4.2.5 Sending level from 200 kHz to 30 MHz</b>	
4.2.5 Sending level from 200 kHz to 3 MHz	Pass
4.2.5 Sending level from 200 kHz to 3 MHz (loop current > 18 mA)	Not required
4.2.5 Sending level from 3 MHz to 30 MHz	Pass
4.2.5 Sending level from 3 MHz to 30 MHz (loop current > 18 mA)	Not required
4.3 Power feeding limitation	Pass
4.4 Automatically repeated call attempts	Not required
<b>ETSI ES 203 021-3 V2.1.2 (2006-01)</b>	
<b>4.4 General requirements in quiescent state</b>	
4.4.1 DC Resistance	Pass
4.4.1 DC Resistance (single terminal)	Not required
<b>4.4.2 Characteristics of TE for ringing signals</b>	
4.4.2.1 Impedance	Pass
4.4.2.1 Impedance (single terminal)	Not required
4.4.2.2 Transient response	Pass
4.4.2.3 DC current	Pass
4.4.3 Resistance to earth	Not required
4.4.3 Resistance to earth (single terminal)	Not required
4.4.4 Impedance	Pass



4.5 Ringing signal detector sensitivity	Pass
<b>4.6 Transition from quiescent to loop state</b>	
4.6.1 Acceptance of breaks in the loop in a call attempt	Pass
4.6.2 Loop current characteristics	Pass
4.6.2 Loop current characteristics (loop current > 18 mA)	Not required
4.6.3 Ring trip	Not required
<b>4.7 General loop steady state requirements</b>	
4.7.1 DC characteristics	Pass
4.7.1 DC characteristics (loop current > 18 mA)	Not required
4.7.2 Impedance	Pass
4.7.2 Reactive component of the impedance	Pass
4.7.2 Impedance (loop current > 18 mA)	Not required
4.7.2 Reactive component of the impedance (loop current > 18 mA)	Not required
4.7.3 Resistance to earth	Not required
<b>4.8 Call attempt</b>	
<b>4.8.1 Automatic dialling</b>	
4.8.1.1 Dialling without dial tone detection	Not required
4.8.1.2 Dialling with dial tone detection	Not required
<b>4.8.2 DTMF signalling</b>	
4.8.2.1 Frequency combinations. 4.8.2.4 Tone duration. 4.8.2.5 Pause duration	Pass
4.8.2.2 Signalling levels. 4.8.2.3 Unwanted frequency components	Pass
4.8.2.2 Signalling levels. 4.8.2.3 Unwanted frequency components (loop current > 18 mA)	Not required
4.8.5 Call attempt on a low voltage line	Not required
4.9 Transition from loop to quiescent state	Pass

## 11 Detailed test results

<b>Test specification:</b>	<b>4.2.1 Mean sending level</b>		
<b>Test purpose:</b>	To check that the mean sending level in the frequency range 200 Hz to 3 800 Hz over a one-minute period is not greater than -9.7 dBV. This requirement does not apply to DTMF signals.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 19:54:47		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20Hz - 300kHz)	±0.1dB
Signal power level (300kHz - 30 MHz)	±2.52dB
Peak to peak voltage (frequency 10Hz - 5kHz)	±0.22%

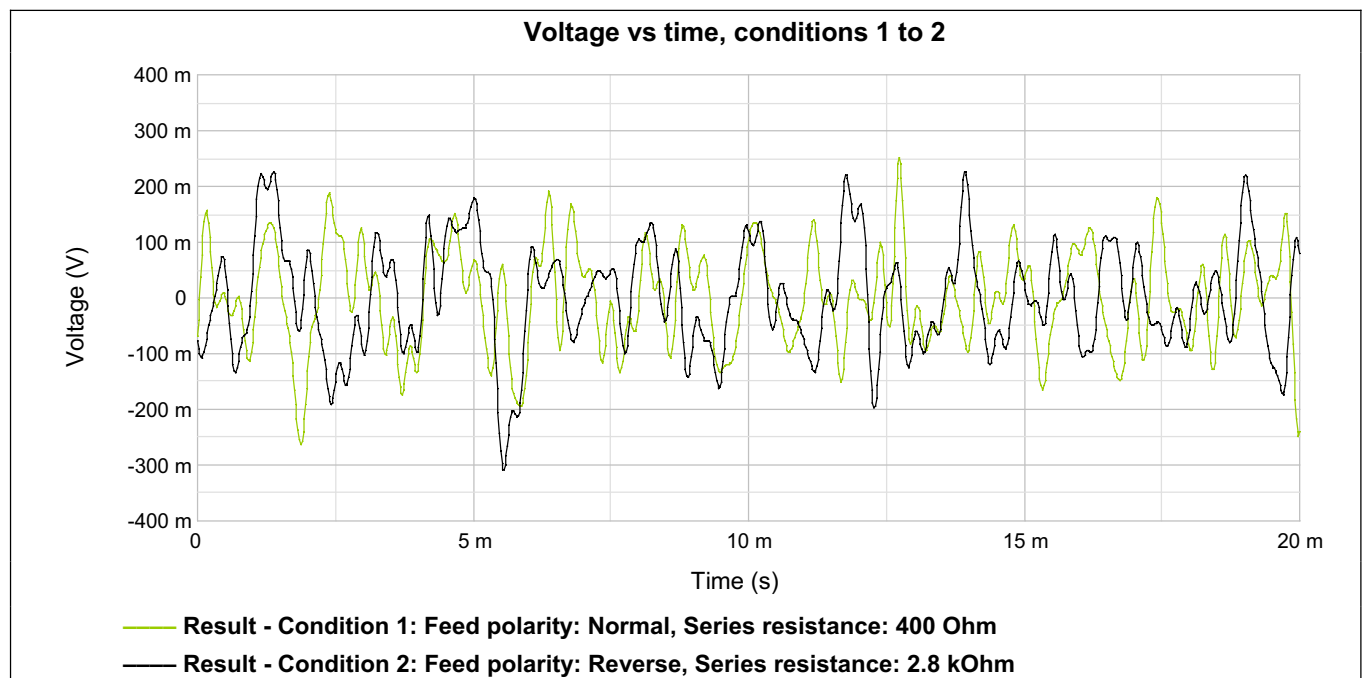
### General parameters

Parameter	Value
EUT state	Sending Data
Feed voltage	50 V

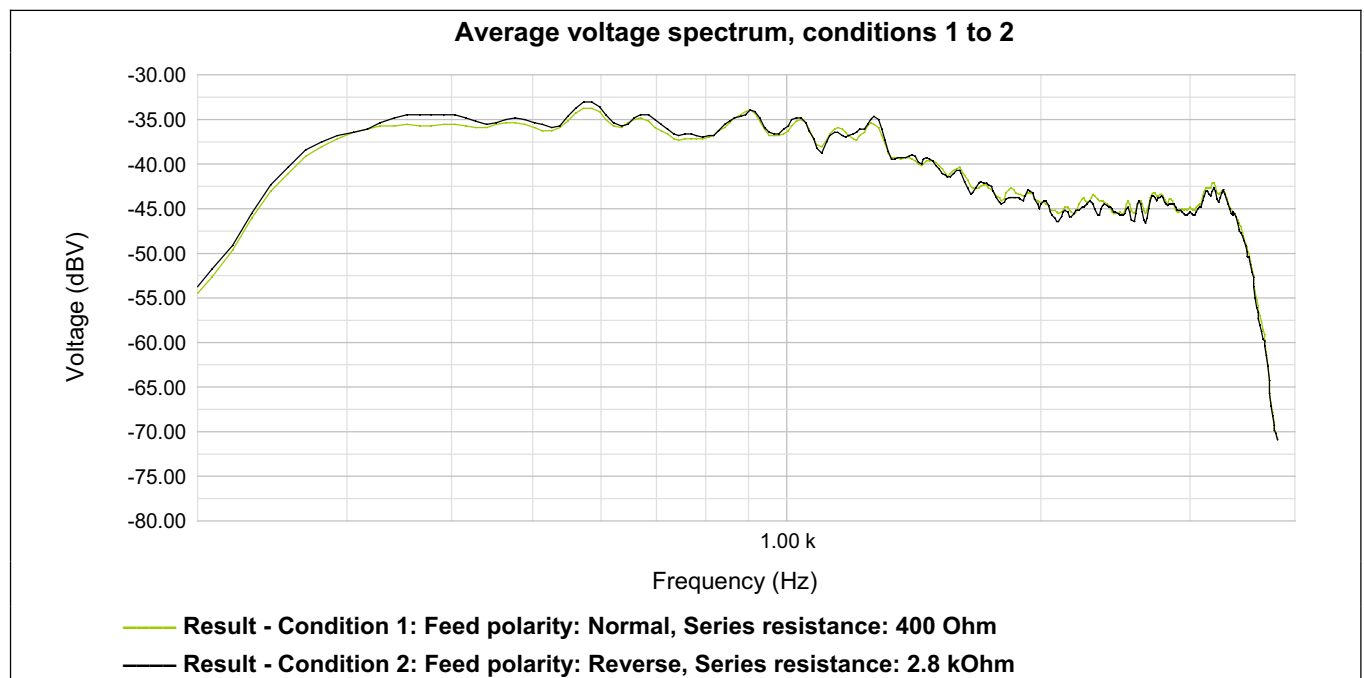
### Test ranges

Frequency				
Start	Stop	Overall meas. time	Acquisition settings	Termination
200.00 Hz	3.80 kHz	60 s	Acquisition time = 100 ms, Overall meas. time = 60 s	270 Ohm + 750 Ohm    0.15 uF VF

<b>Test specification:</b>	<b>4.2.1 Mean sending level</b>		
<b>Test purpose:</b>	To check that the mean sending level in the frequency range 200 Hz to 3 800 Hz over a one-minute period is not greater than -9.7 dBV. This requirement does not apply to DTMF signals.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 19:54:47		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			



<b>Test specification:</b>	<b>4.2.1 Mean sending level</b>		
<b>Test purpose:</b>	To check that the mean sending level in the frequency range 200 Hz to 3 800 Hz over a one-minute period is not greater than -9.7 dBV. This requirement does not apply to DTMF signals.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 19:54:47		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			



#### Average voltage

Average voltage	Limit	Verdict
Condition 1: Feed polarity: Normal, Series resistance: 400 Ohm		<b>Pass</b>
-20.87 dBV	-9.7 dBV	Pass
Condition 2: Feed polarity: Reverse, Series resistance: 2.8 kOhm		<b>Pass</b>
-20.67 dBV	-9.7 dBV	Pass

<b>Test specification:</b>	<b>4.2.2 Instantaneous voltage</b>		
<b>Test purpose:</b>	To check that the peak to peak voltage of the TE shall not be greater than 5V.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 19:56:46		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

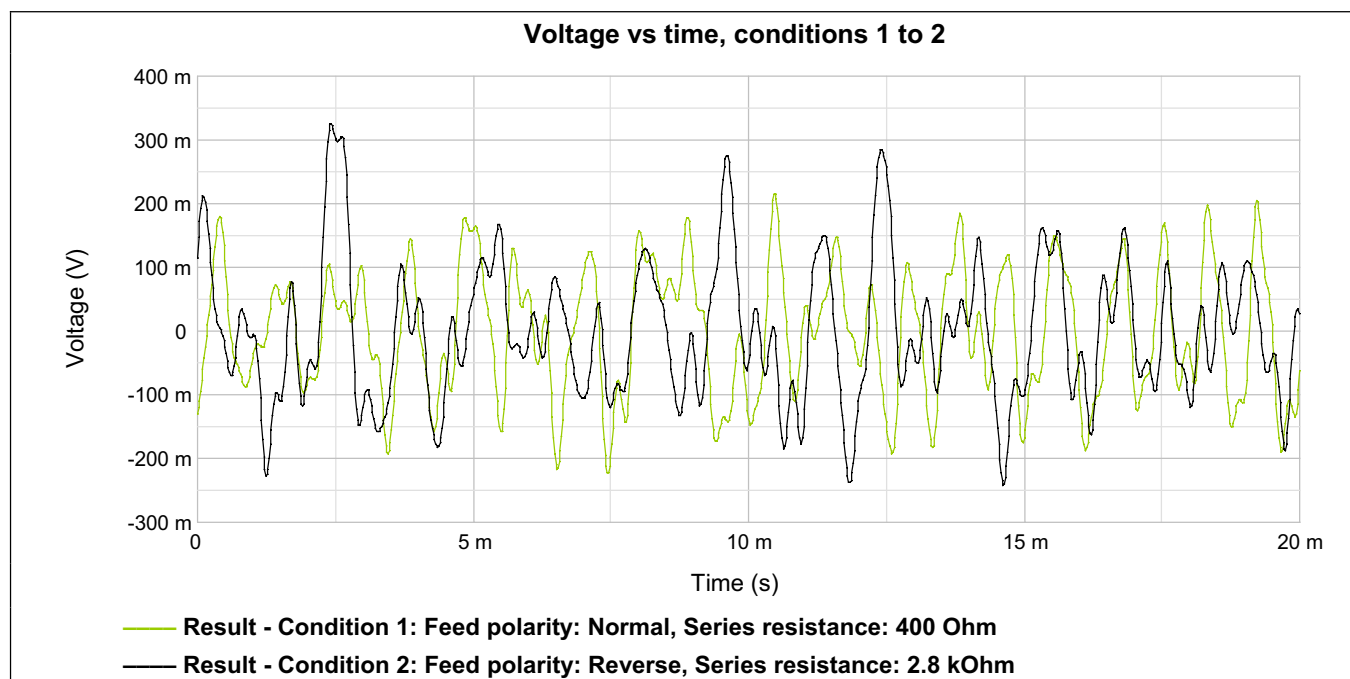
Signal power level (20Hz - 300kHz)	±0.1dB
Signal power level (300kHz - 30 MHz)	±2.52dB
Peak to peak voltage (frequency 10Hz - 5kHz)	±0.22%

### General parameters

Parameter	Value
EUT state	...
Feed voltage	50 V

### Test ranges

Frequency		Overall meas. time	Acquisition settings	Termination
Start	Stop			
200.00 Hz	3.80 kHz	60 s	Acquisition time = 100 ms, Overall meas. time = 60 s	270 Ohm + 750 Ohm    0.15 uF VF





<b>Test specification:</b>	<b>4.2.2 Instantaneous voltage</b>		
<b>Test purpose:</b>	To check that the peak to peak voltage of the TE shall not be greater than 5V.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 19:56:46		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			

#### Max peak to peak voltage

Peak to Peak Voltage	Limit	Verdict
<b>Condition 1: Feed polarity: Normal, Series resistance: 400 Ohm</b>		<b>Pass</b>
0.66 V	5 V	Pass
<b>Condition 2: Feed polarity: Reverse, Series resistance: 2.8 kOhm</b>		<b>Pass</b>
0.71 V	5 V	Pass



<b>Test specification:</b>	<b>4.2.2 Instantaneous voltage</b>		
<b>Test purpose:</b>	To check that the peak to peak voltage of the TE shall not be greater than 5V.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 21:05:59		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> DTMF			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

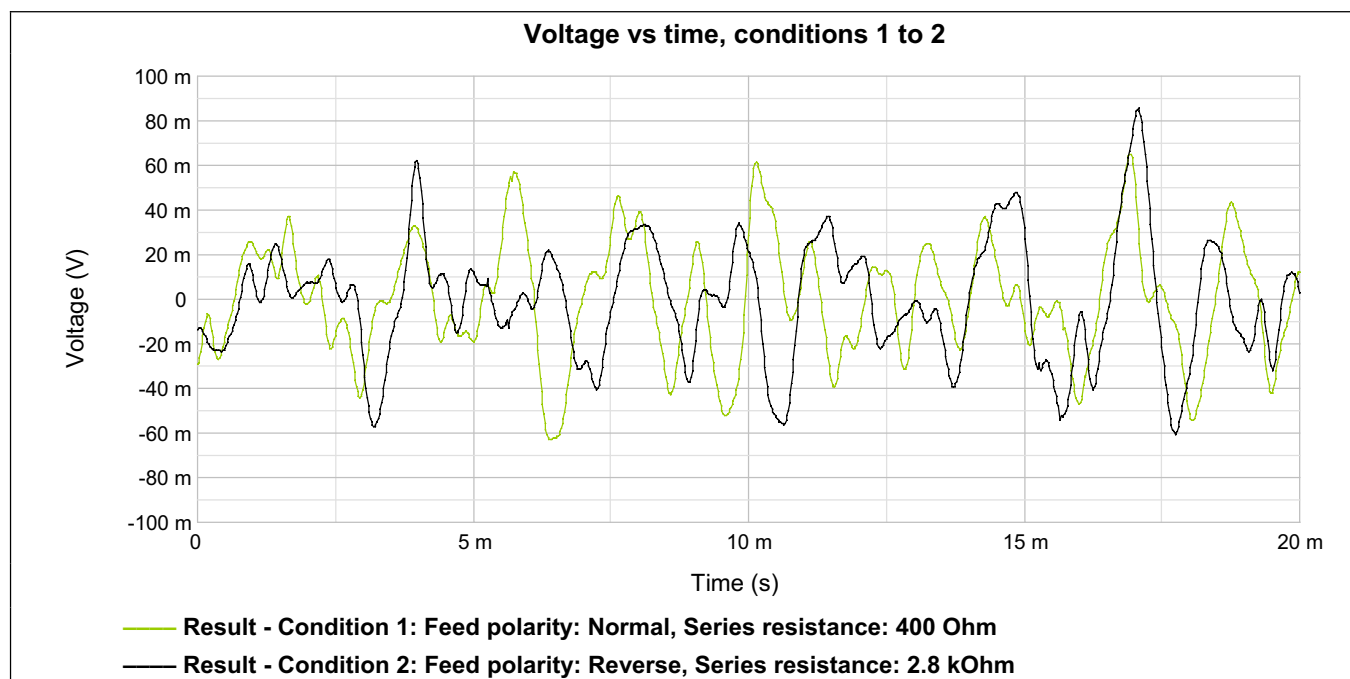
Signal power level (20Hz - 300kHz)	±0.1dB
Signal power level (300kHz - 30 MHz)	±2.52dB
Peak to peak voltage (frequency 10Hz - 5kHz)	±0.22%

### General parameters

Parameter	Value
EUT state	...
Feed voltage	50 V

### Test ranges

Frequency		Overall meas. time	Acquisition settings	Termination
Start	Stop			
200.00 Hz	3.80 kHz	60 s	Acquisition time = 100 ms, Overall meas. time = 60 s	270 Ohm + 750 Ohm    0.15 uF VF





Test specification:	4.2.2 Instantaneous voltage		
Test purpose:	To check that the peak to peak voltage of the TE shall not be greater than 5V.		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	4/24/2008 21:05:59		
Temperature: 23degree C	Air Pressure: 101.2kPa	Relative Humidity: 50%	Mains Power Supply: 230V
Remarks: DTMF			

**Max peak to peak voltage**

Peak to Peak Voltage	Limit	Verdict
Condition 1: Feed polarity: Normal, Series resistance: 400 Ohm		Pass
2.11 V	5 V	Pass
Condition 2: Feed polarity: Reverse, Series resistance: 2.8 kOhm		Pass
2.09 V	5 V	Pass

<b>Test specification:</b>	<b>4.2.3 Sending level in a 10 Hz bandwidth</b>		
<b>Test purpose:</b>	To check that sending level within every 10 Hz bandwidth in the frequency range 30 Hz to 4300 Hz. This requirement does not apply to DTMF signals and Voice TE.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 19:58:02		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20Hz - 300kHz)	±0.1dB
Signal power level (300kHz - 30 MHz)	±2.52dB
Peak to peak voltage (frequency 10Hz - 5kHz)	±0.22%

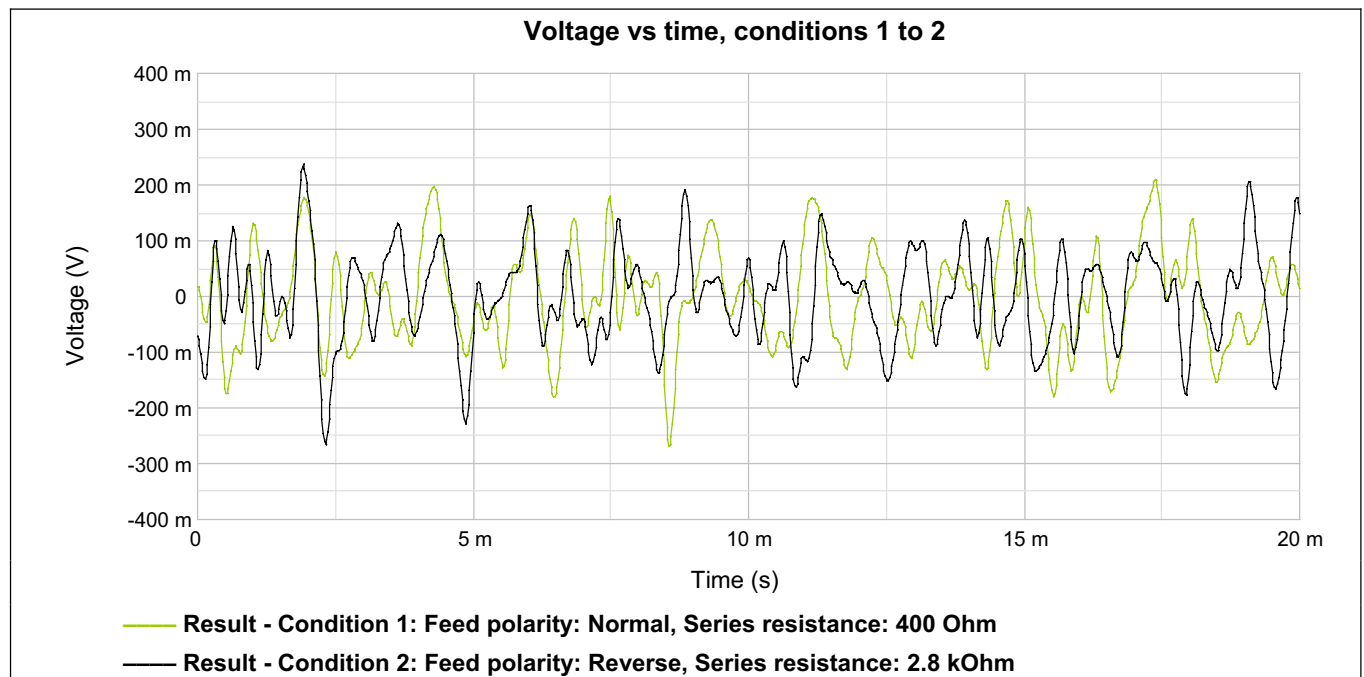
### General parameters

Parameter	Value
Feed voltage	50 V

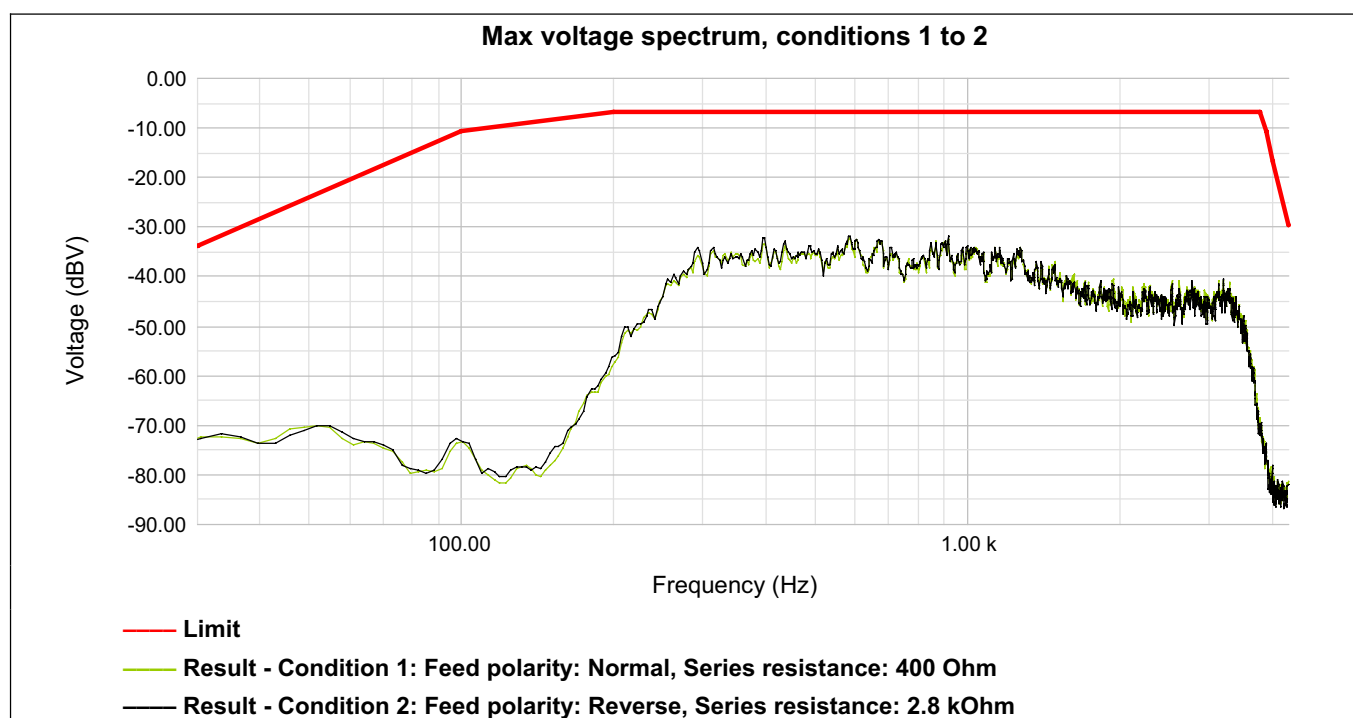
### Test ranges

Frequency					
Start	Stop	Bandwidth	Overall meas. time	Acquisition settings	Termination
30.00 Hz	4.30 kHz	10.00 Hz	30 s	Resolution bandwidth = 10.00 Hz, Averaging interval = 100.00 ms, Overall meas. time = 30 s	270 Ohm + 750 Ohm    0.15 uF VF

<b>Test specification:</b>	<b>4.2.3 Sending level in a 10 Hz bandwidth</b>		
<b>Test purpose:</b>	To check that sending level within every 10 Hz bandwidth in the frequency range 30 Hz to 4300 Hz. This requirement does not apply to DTMF signals and Voice TE.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 19:58:02		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			



<b>Test specification:</b>	<b>4.2.3 Sending level in a 10 Hz bandwidth</b>		
<b>Test purpose:</b>	To check that sending level within every 10 Hz bandwidth in the frequency range 30 Hz to 4300 Hz. This requirement does not apply to DTMF signals and Voice TE.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 19:58:02		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			



<b>Test specification:</b>	<b>4.2.4.1 Sending level between 4,3 kHz and 200 KHz during DTMF dialling</b>		
<b>Test purpose:</b>	To check that the sending level in frequency range 4.3 kHz to 200 kHz during DTMF signaling is not greater than allowed.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 19:26:51		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> DTMF			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20Hz - 300kHz)	±0.1dB
Signal power level (300kHz - 30 MHz)	±2.52dB
Peak to peak voltage (frequency 10Hz - 5kHz)	±0.22%

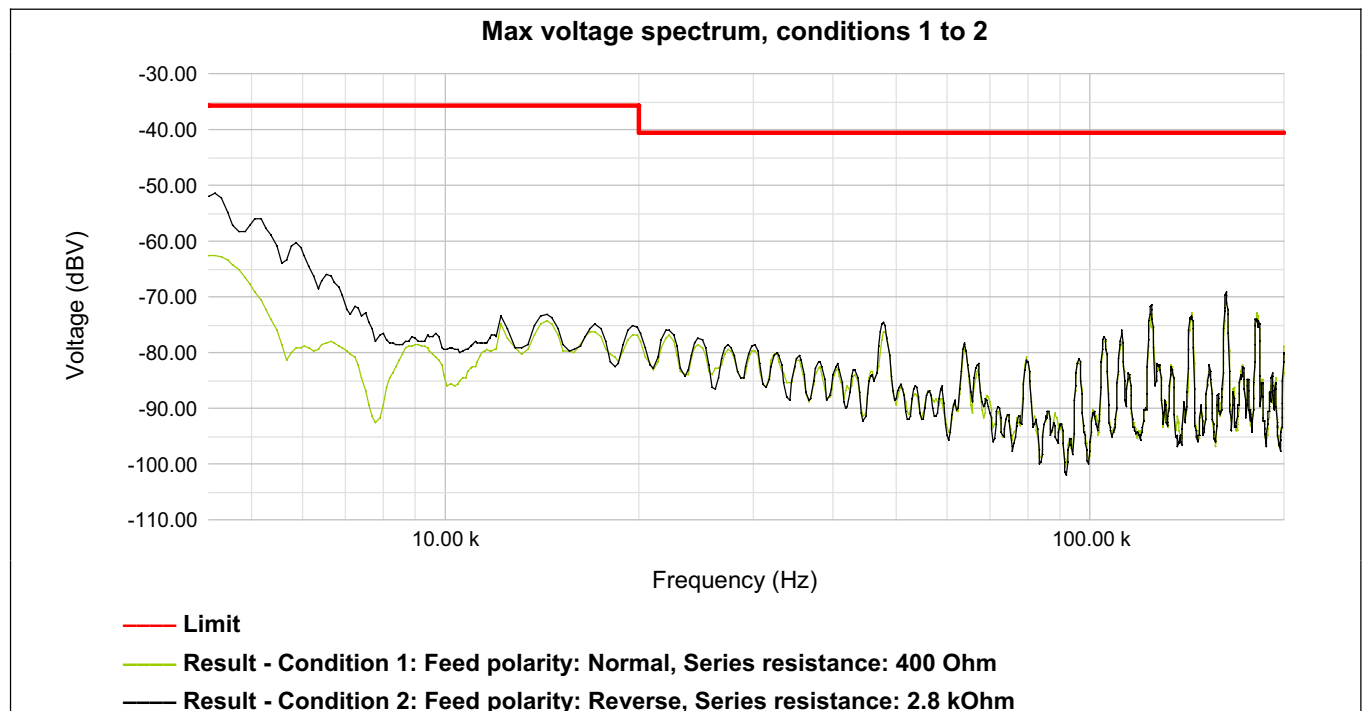
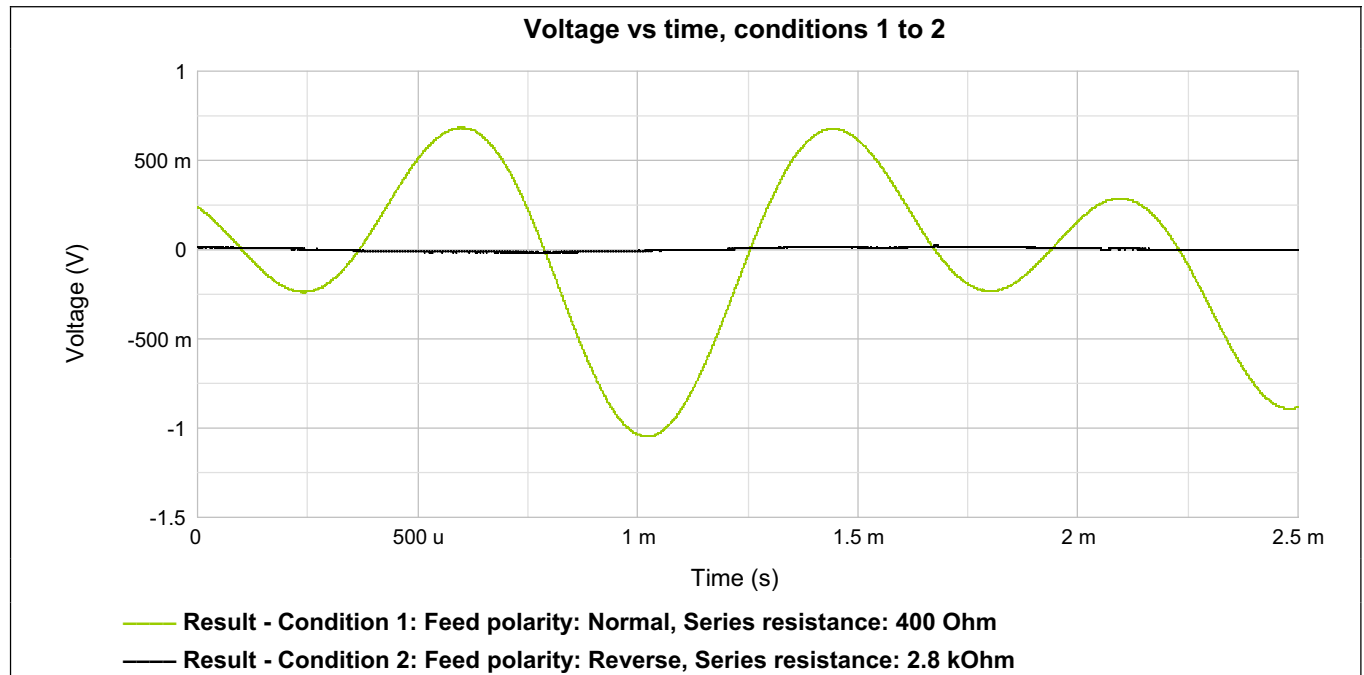
### General parameters

Parameter	Value
Feed voltage	50 V

### Test ranges

Frequency					
Start	Stop	Bandwidth	Overall meas. time	Acquisition settings	Termination
4.30 kHz	12.00 kHz	300.00 Hz	20 s	Resolution bandwidth = 300.00 Hz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	270 Ohm + 750 Ohm II 0.15 uF VF
12.00 kHz	200.00 kHz	1.00 kHz	20 s	Resolution bandwidth = 1.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 20 s	270 Ohm + 750 Ohm II 0.15 uF VF

<b>Test specification:</b>	<b>4.2.4.1 Sending level between 4,3 kHz and 200 KHz during DTMF dialling</b>		
<b>Test purpose:</b>	To check that the sending level in frequency range 4.3 kHz to 200 kHz during DTMF signaling is not greater than allowed.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 19:26:51		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> DTMF			



<b>Test specification:</b>	<b>4.2.4.2 Sending level between 4,3 kHz and 200 KHz during communication</b>		
<b>Test purpose:</b>	To check that the sending level in frequency range 4.3 kHz to 200 kHz during communication is not greater than allowed.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 20:48:15		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20Hz - 300kHz)	±0.1dB
Signal power level (300kHz - 30 MHz)	±2.52dB
Peak to peak voltage (frequency 10Hz - 5kHz)	±0.22%

### General parameters

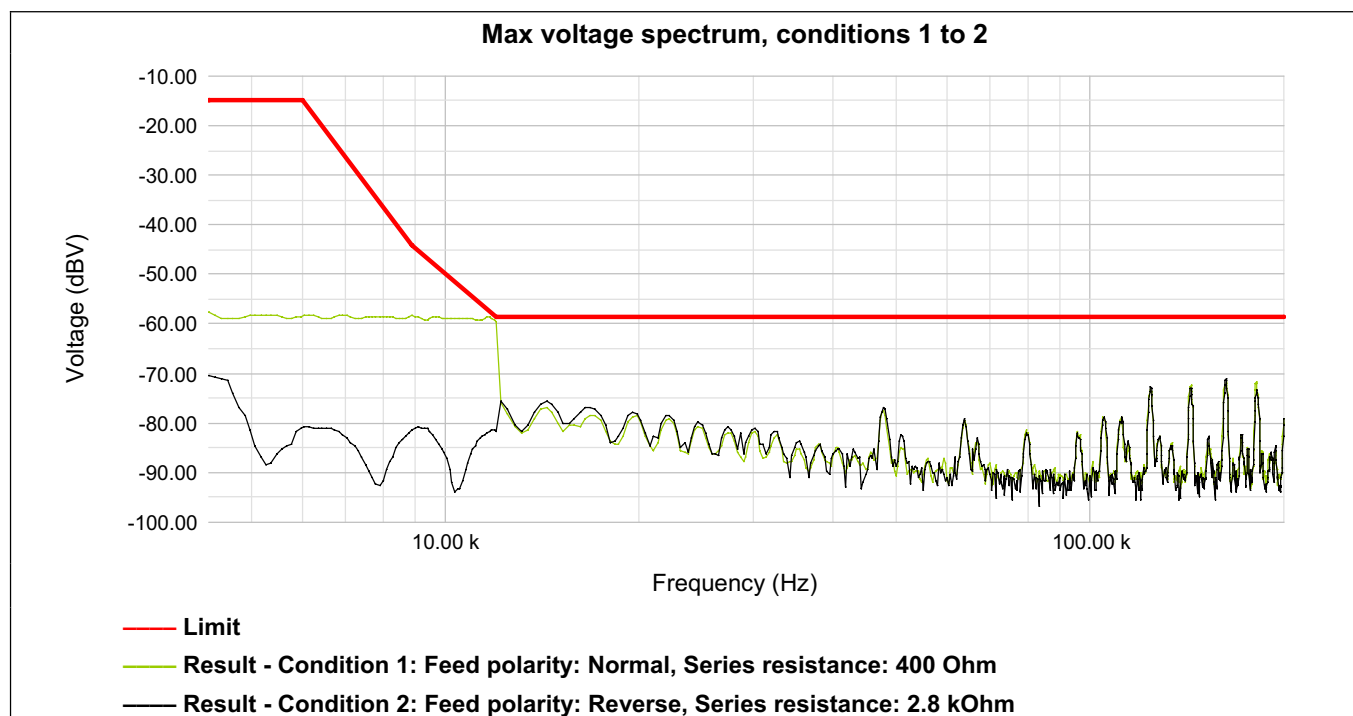
Parameter	Value
Feed voltage	50 V

### Test ranges

Frequency					
Start	Stop	Bandwidth	Overall meas. time	Acquisition settings	Termination
4.30 kHz	12.00 kHz	300.00 Hz	5 s	Resolution bandwidth = 300.00 Hz, Averaging interval = 100.00 ms, Overall meas. time = 5 s	270 Ohm + 750 Ohm II 0.15 uF VF
12.00 kHz	200.00 kHz	1.00 kHz	5 s	Resolution bandwidth = 1.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 5 s	270 Ohm + 750 Ohm II 0.15 uF VF



<b>Test specification:</b>	<b>4.2.4.2 Sending level between 4,3 kHz and 200 KHz during communication</b>		
<b>Test purpose:</b>	To check that the sending level in frequency range 4.3 kHz to 200 kHz during communication is not greater than allowed.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 20:48:15		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			



<b>Test specification:</b>	<b>4.2.5 Sending level from 200 kHz to 3 MHz</b>		
<b>Test purpose:</b>	To check that the total voltage level in a bandwidth, defined in table 1, wholly contained within the frequency range 200 kHz to 3 MHz, arising from normal operation of the TE and when terminated with ZRHF, not exceed the limits shown in table 1 and figure 1.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/29/2008 14:50:59		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20Hz - 300kHz)	±0.1dB
Signal power level (300kHz - 30 MHz)	±2.52dB

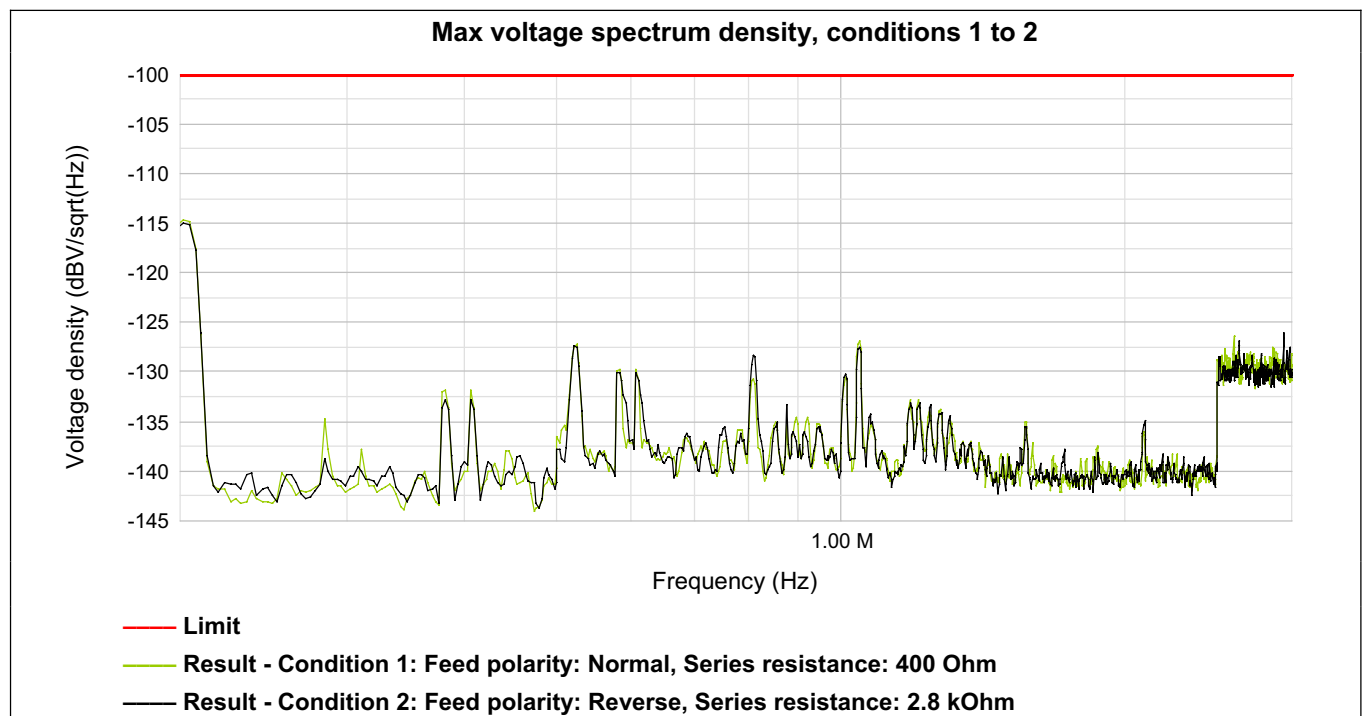
### General parameters

Parameter	Value
Feed voltage	50 V

### Test ranges

Frequency					
Start	Stop	Bandwidth	Overall meas. time	Acquisition settings	Termination
200.00 kHz	500.00 kHz	10.00 kHz	10 s	Resolution bandwidth = 10.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 10 s	Zref.HF-ETSI
500.00 kHz	2.50 MHz	10.00 kHz	10 s	Resolution bandwidth = 10.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 10 s	Zref.HF-ETSI
2.50 MHz	3.00 MHz	10.00 kHz	10 s	Resolution bandwidth = 10.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 10 s	Zref.HF-ETSI

<b>Test specification:</b>	<b>4.2.5 Sending level from 200 kHz to 3 MHz</b>		
<b>Test purpose:</b>	To check that the total voltage level in a bandwidth, defined in table 1, wholly contained within the frequency range 200 kHz to 3 MHz, arising from normal operation of the TE and when terminated with ZRHF, not exceed the limits shown in table 1 and figure 1.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/29/2008 14:50:59		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			



<b>Test specification:</b>	<b>4.2.5 Sending level from 3 MHz to 30 MHz</b>		
<b>Test purpose:</b>	To check that the total voltage level in a bandwidth, defined in table 1, wholly contained within the frequency range 3 MHz to 30 MHz, arising from normal operation of the TE and when terminated with ZRHF, not exceed the limits shown in table 1 and figure 1.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/29/2008 14:53:04		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Signal power level (20Hz - 300kHz)	±0.1dB
Signal power level (300kHz - 30 MHz)	±2.52dB

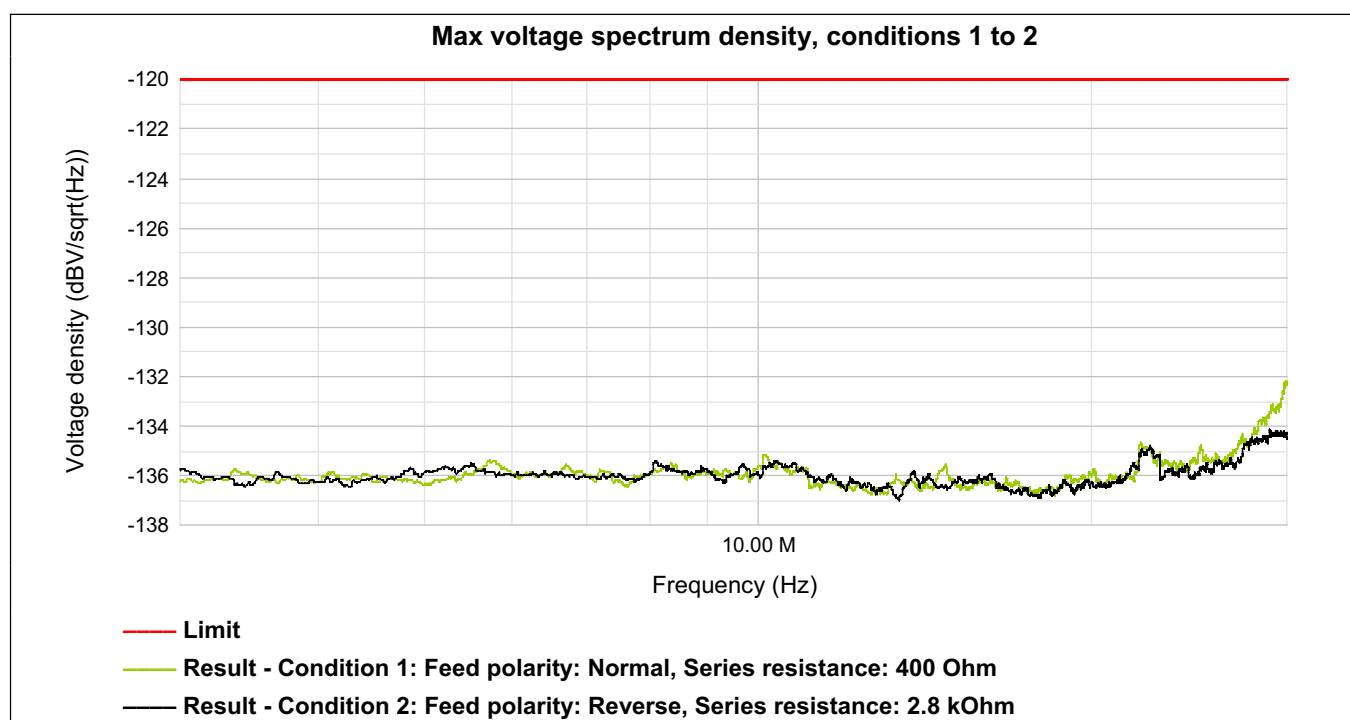
### General parameters

Parameter	Value
Feed voltage	50 V

### Test ranges

Frequency					
Start	Stop	Bandwidth	Overall meas. time	Acquisition settings	Termination
3.00 MHz	30.10 MHz	10.00 kHz	10 s	Resolution bandwidth = 10.00 kHz, Averaging interval = 100.00 ms, Overall meas. time = 10 s	Zref.HF-ETSI

<b>Test specification:</b>	<b>4.2.5 Sending level from 3 MHz to 30 MHz</b>		
<b>Test purpose:</b>	To check that the total voltage level in a bandwidth, defined in table 1, wholly contained within the frequency range 3 MHz to 30 MHz, arising from normal operation of the TE and when terminated with ZRHF, not exceed the limits shown in table 1 and figure 1.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/29/2008 14:53:04		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b> Pink Noise			



<b>Test specification:</b>	<b>4.3 Power feeding limitation</b>		
<b>Test purpose:</b>	To verify that the TE does not feed the TN interface.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 20:52:19		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Current  $\pm 1.23\%$

Voltage  $\pm 1.1\%$

### General parameters

Parameter	Value
Delay before meas.	5s
Termination	300 Ohm

### Max voltage, Max current

Max Voltage	Max Current	Limit	Verdict
			<b>Pass</b>
0.00 V	1.15 uA	1 mA	Pass

<b>Test specification:</b>	<b>4.4.1 DC Resistance</b>		
<b>Test purpose:</b>	To check whether the TE presents a resistance of at least 4 MOhm at 25, 50 and 100 VDC in quiescent state.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 16:33:30		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Tip-Ring, Test voltage 1-200V

Resistance in range 30 kohm - 10 Mohm    ±0.8 %

Resistance in range 10- 30 Mohm            ±2.5%

Tip, Ring to Ground, Test voltage 5-500V

Resistance in range 30 kohm - 1 Mohm    ±1%

Resistance in range 1 Mohm - 10 Mohm    ±2%

Resistance in range 10- 30 Mohm            ±2.5%

### Resistance vs voltage

Voltage	Resistance	Limit	Verdict
<b>Condition 1: Test polarity: Normal</b>			<b>Pass</b>
25 V	11.03 MOhm	4 MOhm	Pass
50 V	10.65 MOhm	4 MOhm	Pass
100 V	10.01 MOhm	4 MOhm	Pass
<b>Condition 2: Test polarity: Reverse</b>			<b>Pass</b>
25 V	11.08 MOhm	4 MOhm	Pass
50 V	10.65 MOhm	4 MOhm	Pass
100 V	10.01 MOhm	4 MOhm	Pass

<b>Test specification:</b>	<b>4.4.2.1 Impedance</b>		
<b>Test purpose:</b>	To determine whether the TE presents impedance in the quiescent state during ringing equal to or greater than 16 KOhm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 16:34:56		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

DC current	±2.6%
AC current	±0.72%
Phase	±0.43%
Impedance	±1.69%

### General parameters

Parameter	Value
Series resistance	2.05 kOhm
Ring level	30.00 Vrms

### AC Current, Impedance

Current	Impedance	Limit	Verdict
<b>Condition 1: Feed voltage: 0 V, Ring frequency: 25.00 Hz</b>			
< 50.00 uA	> 600.58 kOhm	16 kOhm	Pass
<b>Condition 2: Feed voltage: 50 V, Ring frequency: 25.00 Hz</b>			
< 50.00 uA	> 600.71 kOhm	16 kOhm	Pass
<b>Condition 3: Feed voltage: 0 V, Ring frequency: 50.00 Hz</b>			
< 50.00 uA	> 600.52 kOhm	16 kOhm	Pass
<b>Condition 4: Feed voltage: 50 V, Ring frequency: 50.00 Hz</b>			
< 50.00 uA	> 600.40 kOhm	16 kOhm	Pass



<b>Test specification:</b>	<b>4.4.2.2 Transient response</b>		
<b>Test purpose:</b>	To check the transient current characteristics of the TE in quiescent state. The current shall be equal to or less than 25 mA, 1 ms after commencement of the excitation, and equal to or less than 10 mA 6 ms after commencement.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 16:37:26		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

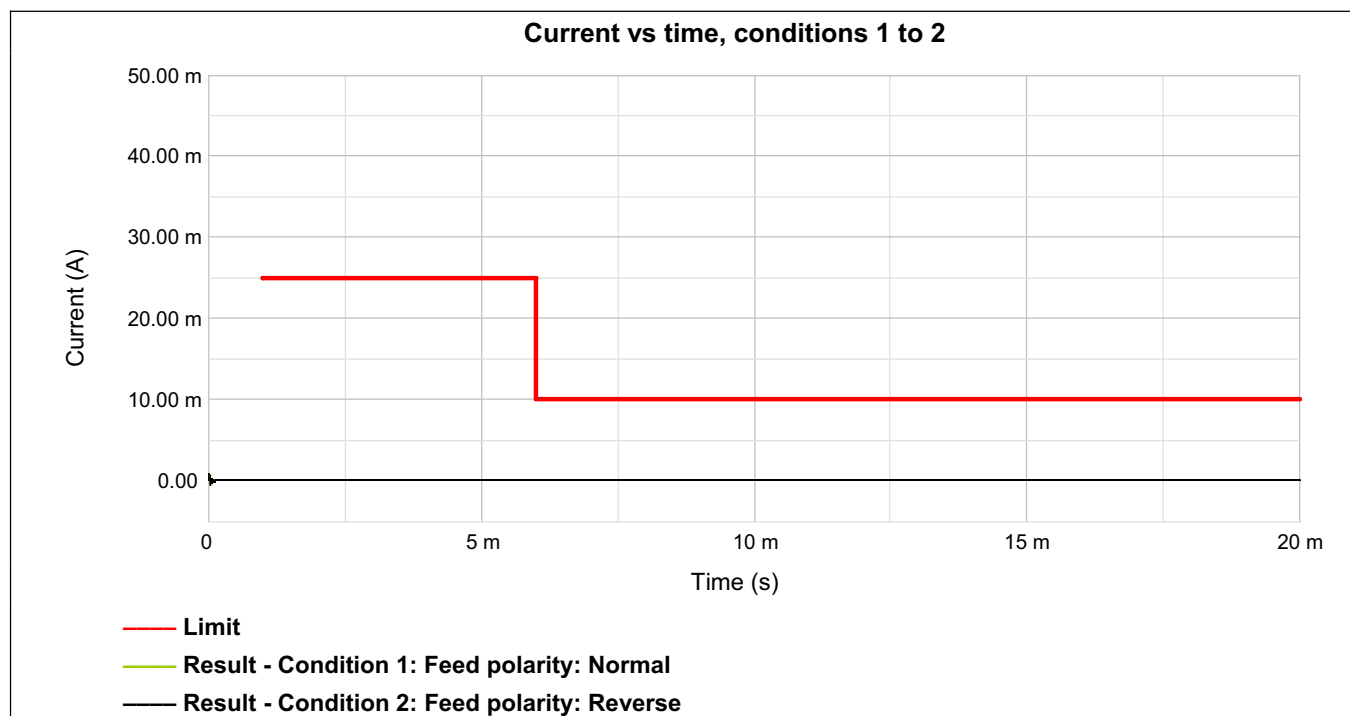
### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Current	±1.4%
Timing	±0.1ms

### General parameters

Parameter	Value
Series resistance	200 Ohm
Feed voltage	60 V



<b>Test specification:</b>	<b>4.4.2.3 DC current</b>		
<b>Test purpose:</b>	To determine whether the DC component of the ringing current exceeds 0.6 mA		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 16:38:47		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

DC current	±2.6%
AC current	±0.72%
Phase	±0.43%
Impedance	±1.69%

### General parameters

Parameter	Value
Series resistance	850 Ohm
Meas. configuration	Tip - Ring
Ringing signal level	90.00 Vrms

### DC Current

Current	Limit	Verdict
<b>Condition 1: Feed polarity: Normal, Feed voltage: 60 V, Ringing frequency: 25.00 Hz</b>		<b>Pass</b>
< 50.00 uA	600 uA	Pass
<b>Condition 2: Feed polarity: Normal, Feed voltage: 60 V, Ringing frequency: 50.00 Hz</b>		<b>Pass</b>
< 50.00 uA	600 uA	Pass
<b>Condition 3: Feed polarity: Reverse, Feed voltage: 60 V, Ringing frequency: 25.00 Hz</b>		<b>Pass</b>
< 50.00 uA	600 uA	Pass
<b>Condition 4: Feed polarity: Reverse, Feed voltage: 60 V, Ringing frequency: 50.00 Hz</b>		<b>Pass</b>
< 50.00 uA	600 uA	Pass
<b>Condition 5: Feed polarity: Normal, Feed voltage: 0 V, Ringing frequency: 25.00 Hz</b>		<b>Pass</b>
< 50.00 uA	600 uA	Pass
<b>Condition 6: Feed polarity: Normal, Feed voltage: 0 V, Ringing frequency: 50.00 Hz</b>		<b>Pass</b>
< 50.00 uA	600 uA	Pass

<b>Test specification:</b>	<b>4.4.4 Impedance</b>		
<b>Test purpose:</b>	To check whether the TE presents an impedance at least 40 KOhm between 200 Hz and 4300 Hz and at least 5 KOhm at 12 kHz and 16 kHz when tested at 1 Vrms in the quiescent state.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 16:39:08		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Impedance  $\pm 3.6\%$

### General parameters

Parameter	Value
Feed voltage	9 V
Stimulus level	1 V

### Test ranges

Stimulus frequency		
Start	Stop	Step
200.00 Hz	200.00 Hz	0.00 Hz
4.30 kHz	4.30 kHz	0.00 Hz
12.00 kHz	12.00 kHz	0.00 Hz
16.00 kHz	16.00 kHz	0.00 Hz

### Impedance vs frequency

Frequency	Impedance	Limit	Verdict
			<b>Pass</b>
200.00 Hz	> 150.00 kOhm	40 kOhm	Pass
4.31 kHz	53.40 kOhm	5 kOhm	Pass
12.02 kHz	19.62 kOhm	5 kOhm	Pass
16.00 kHz	14.69 kOhm	5 kOhm	Pass

<b>Test specification:</b>	<b>4.5 Ringing signal detector sensitivity</b>		
<b>Test purpose:</b>	To determine the ability of the TE to respond as stated by the supplier to ringing signals		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/29/2008 17:59:47		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

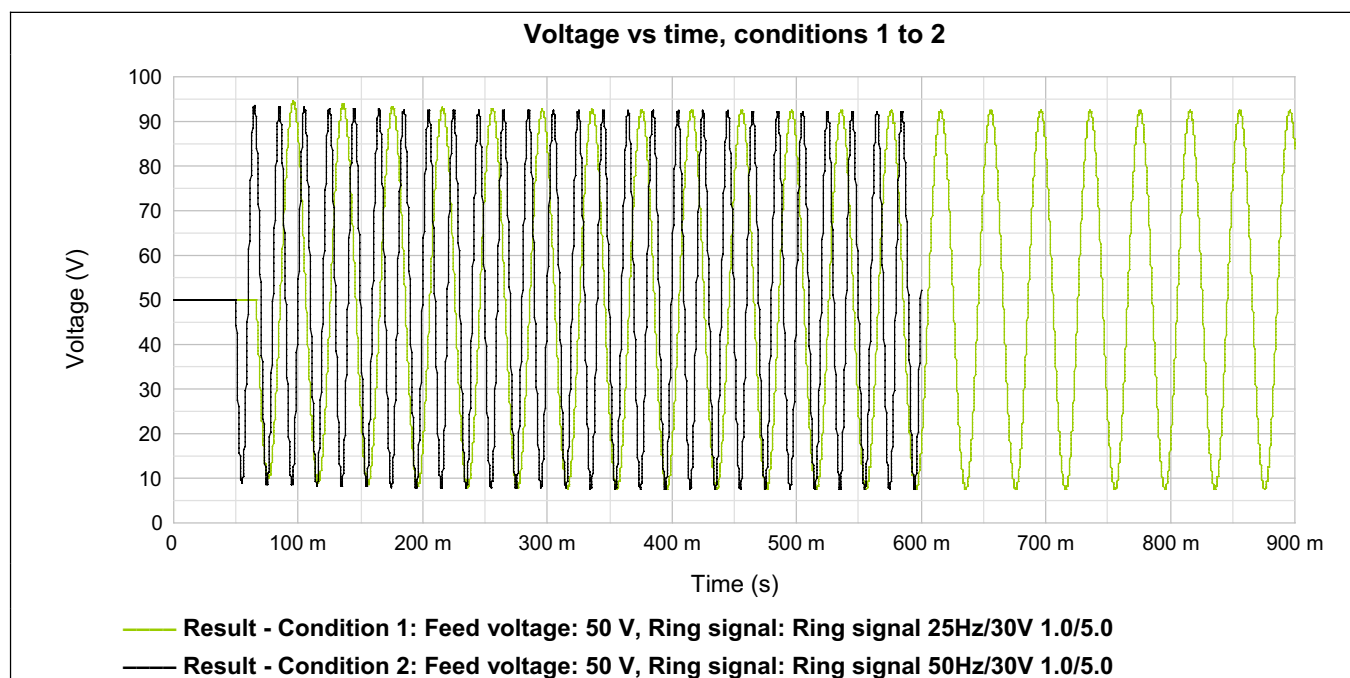
### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

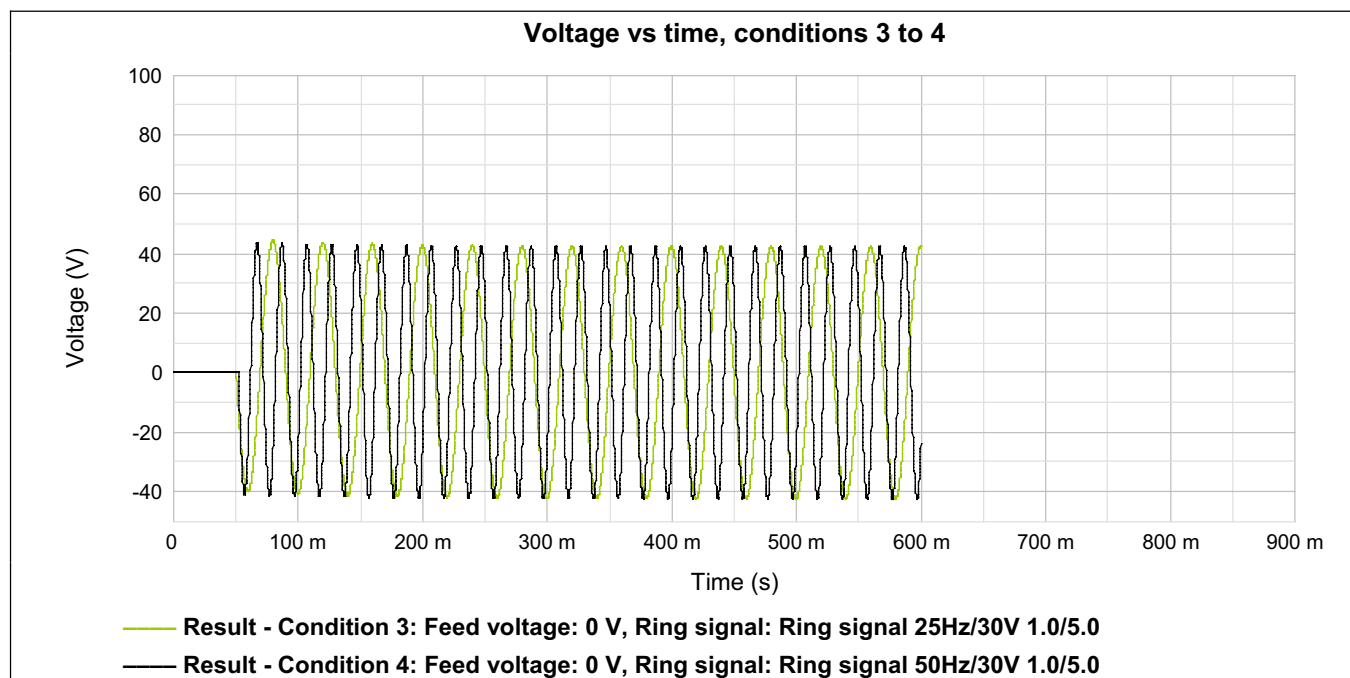
Ringing voltage	±1.6%
Ringing frequency	±0.01%
Timing	±37ms

### General parameters

Parameter	Value
Series resistance	850 Ohm
Adjust ring level	Yes



<b>Test specification:</b>	<b>4.5 Ringing signal detector sensitivity</b>		
<b>Test purpose:</b>	To determine the ability of the TE to respond as stated by the supplier to ringing signals		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/29/2008 17:59:47		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			



#### Response time, Sensitivity

Time	Sensitivity	Limit	Verdict
<b>Condition 1: Feed voltage: 50 V, Ring signal: Ring signal 25Hz/30V 1.0/5.0</b>			
0.89 s	Sensitive	Sensitive	Pass
<b>Condition 2: Feed voltage: 50 V, Ring signal: Ring signal 50Hz/30V 1.0/5.0</b>			
0.78 s	Sensitive	Sensitive	Pass
<b>Condition 3: Feed voltage: 0 V, Ring signal: Ring signal 25Hz/30V 1.0/5.0</b>			
0.76 s	Sensitive	Sensitive	Pass
<b>Condition 4: Feed voltage: 0 V, Ring signal: Ring signal 50Hz/30V 1.0/5.0</b>			
0.79 s	Sensitive	Sensitive	Pass

<b>Test specification:</b>	<b>4.6.1 Acceptance of breaks in the loop in a call attempt</b>		
<b>Test purpose:</b>	To check the ability of the TE to accept breaks in the loop current during establishment of loop state		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/29/2008 15:05:03		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

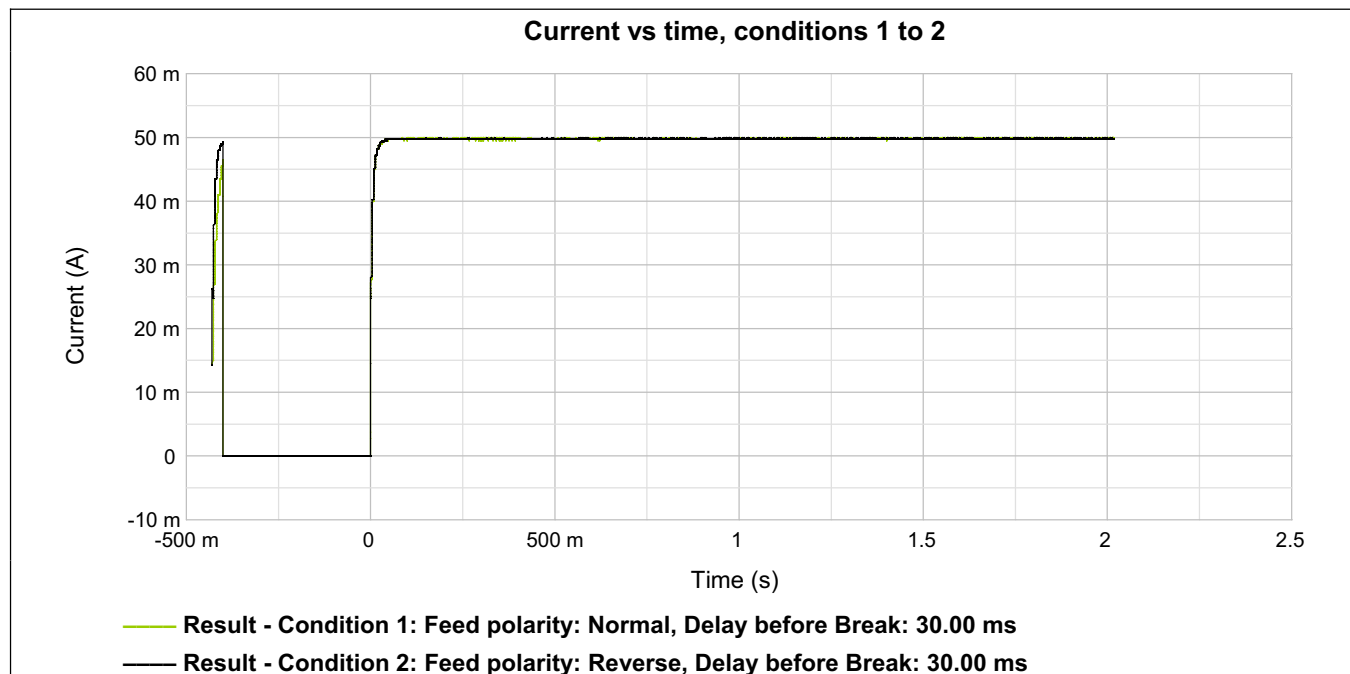
Expanded uncertainty, k=2 (95% confidence):

Measured Current  $\pm 1.2\%$

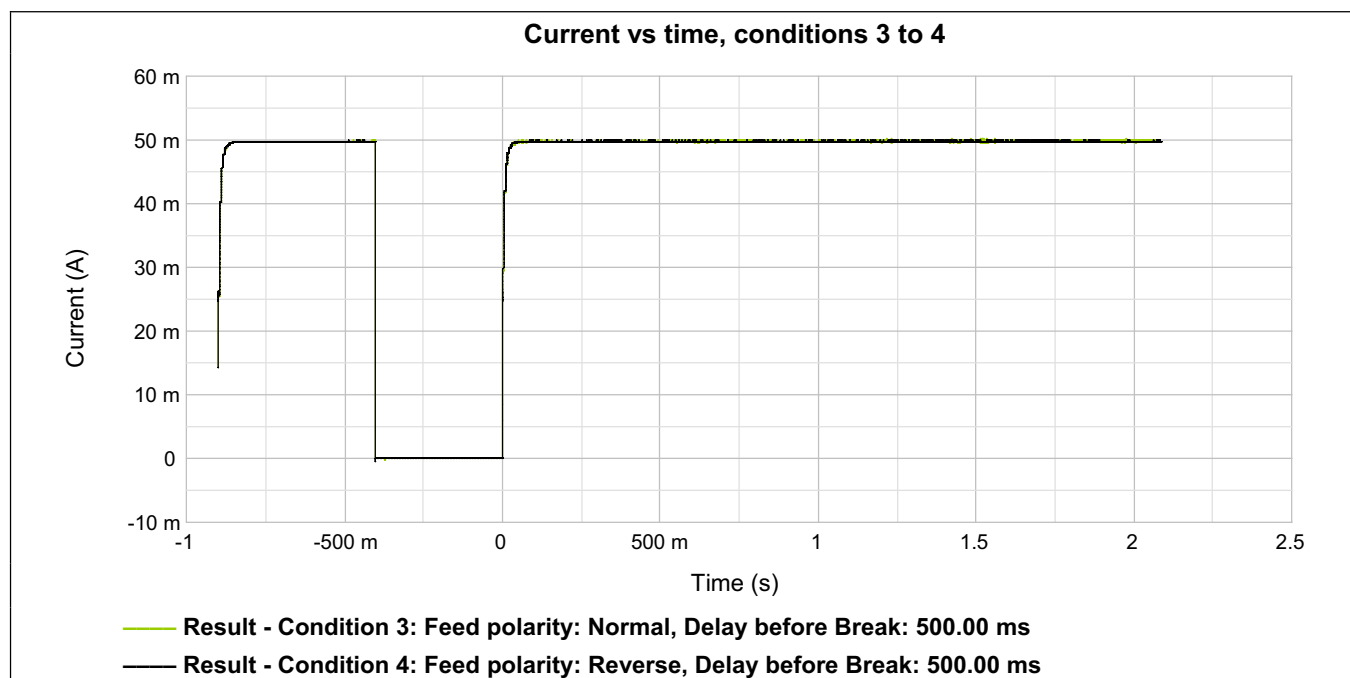
Measured Timing  $\pm 2\%$

### General parameters

Parameter	Value
Series resistance	850 Ohm
Feed voltage	50 V
Off-hook current	0.0128A
Break Loop Duration	400.00 ms



<b>Test specification:</b>	<b>4.6.1 Acceptance of breaks in the loop in a call attempt</b>		
<b>Test purpose:</b>	To check the ability of the TE to accept breaks in the loop current during establishment of loop state		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/29/2008 15:05:03		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			



#### Rise time, Drop time

Rise time	Limit	Drop time	Limit	Verdict
<b>Condition 1: Feed polarity: Normal, Delay before Break: 30.00 ms</b>				
300 us	20 ms	<100 us	7 ms	Pass
<b>Condition 2: Feed polarity: Reverse, Delay before Break: 30.00 ms</b>				
<100 us	20 ms	<100 us	7 ms	Pass
<b>Condition 3: Feed polarity: Normal, Delay before Break: 500.00 ms</b>				
300 us	20 ms	<100 us	7 ms	Pass
<b>Condition 4: Feed polarity: Reverse, Delay before Break: 500.00 ms</b>				
<100 us	20 ms	<100 us	7 ms	Pass

<b>Test specification:</b>	<b>4.6.2 Loop current characteristics</b>		
<b>Test purpose:</b>	To check the current/time characteristics of the TE during the transition from quiescent to loop state in various loop feeding conditions.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 17:12:11		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

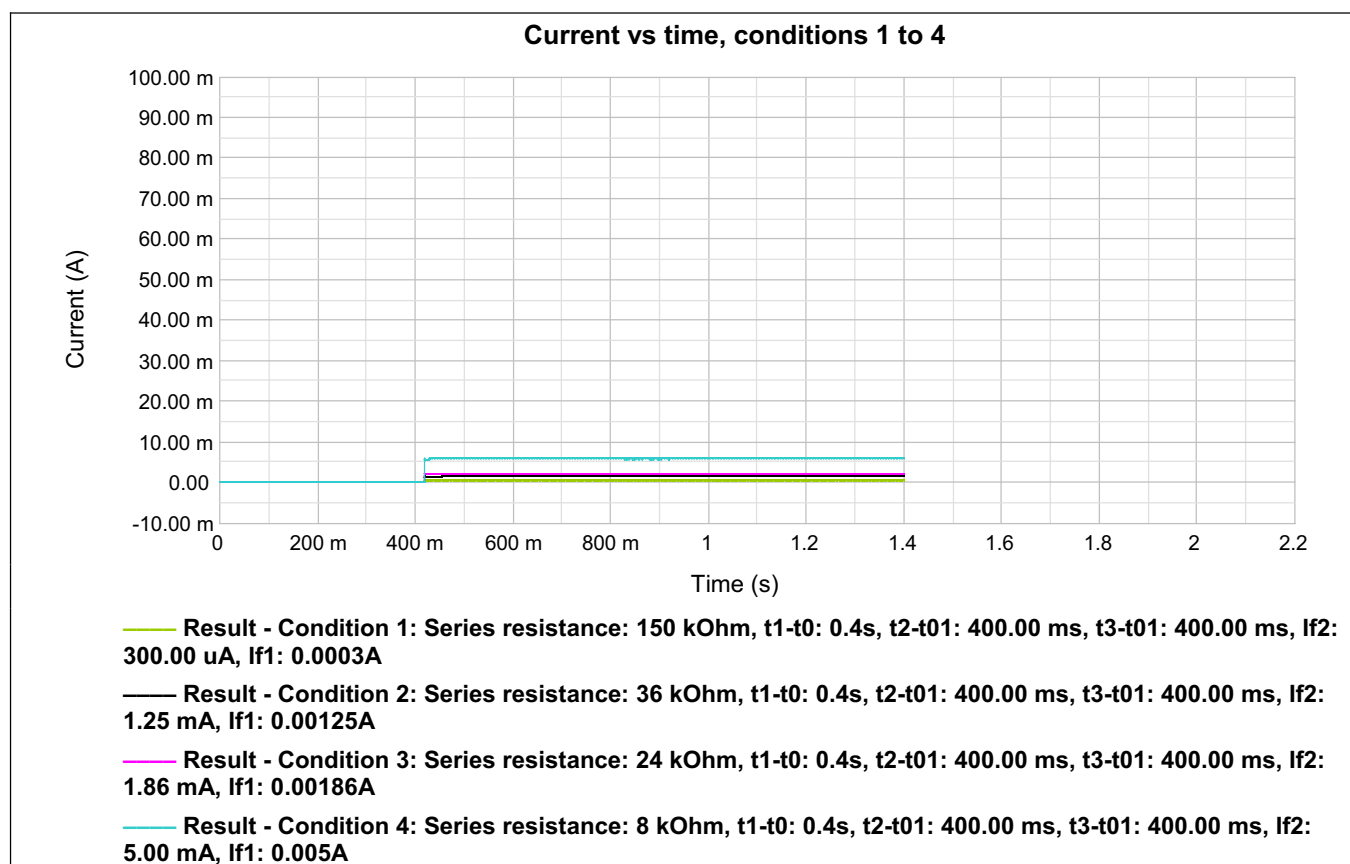
Expanded uncertainty, k=2 (95% confidence):

DC current  $\pm 1.41\%$

Timing  $\pm 0.2\text{ms}$

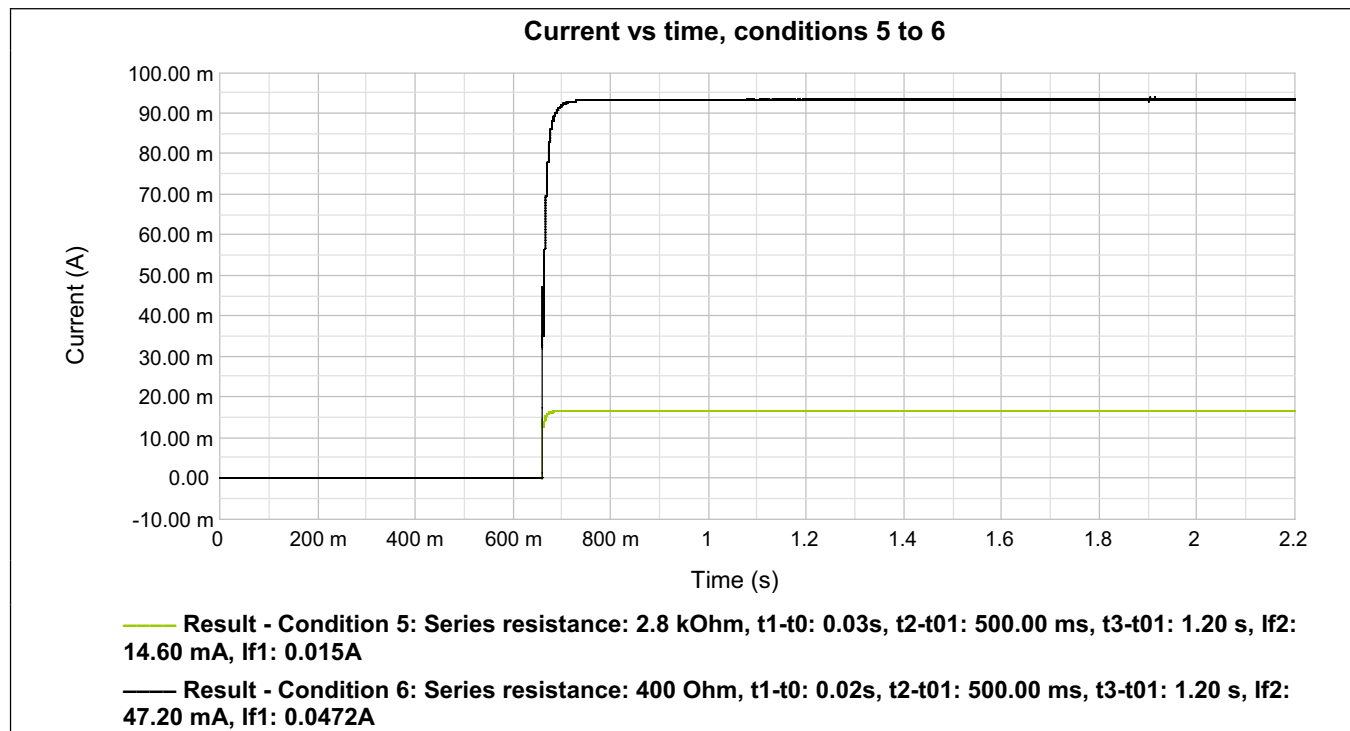
### General parameters

Parameter	Value
Feed polarity	Normal
Feed voltage	50 V
If0	0.0001A





<b>Test specification:</b>	<b>4.6.2 Loop current characteristics</b>		
<b>Test purpose:</b>	To check the current/time characteristics of the TE during the transition from quiescent to loop state in various loop feeding conditions.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 17:12:11		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			



#### Line seizure rise time, Total drops time

Series resistance	Rise time	Limit	Drops time	Limit	Verdict
Condition 1: Series resistance: 150 kOhm, t1-t0: 0.4s, t2-t01: 400.00 ms, t3-t01: 400.00 ms, If2: 300.00 uA, If1: 0.0003A					Pass
150 kOhm	20 us	400 ms	< 20 us	7 ms	Pass
Condition 2: Series resistance: 36 kOhm, t1-t0: 0.4s, t2-t01: 400.00 ms, t3-t01: 400.00 ms, If2: 1.25 mA, If1: 0.00125A					Pass
36 kOhm	20 us	400 ms	< 20 us	7 ms	Pass
Condition 3: Series resistance: 24 kOhm, t1-t0: 0.4s, t2-t01: 400.00 ms, t3-t01: 400.00 ms, If2: 1.86 mA, If1: 0.00186A					Pass
24 kOhm	20 us	400 ms	< 20 us	7 ms	Pass
Condition 4: Series resistance: 8 kOhm, t1-t0: 0.4s, t2-t01: 400.00 ms, t3-t01: 400.00 ms, If2: 5.00 mA, If1: 0.005A					Pass
8 kOhm	20 us	400 ms	< 20 us	7 ms	Pass
Condition 5: Series resistance: 2.8 kOhm, t1-t0: 0.03s, t2-t01: 500.00 ms, t3-t01: 1.20 s, If2: 14.60 mA, If1: 0.015A					Pass
2.8 kOhm	6.64 ms	30 ms	< 20 us	7 ms	Pass



Test specification:	4.6.2 Loop current characteristics		
Test purpose:	To check the current/time characteristics of the TE during the transition from quiescent to loop state in various loop feeding conditions.		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	4/24/2008 17:12:11		
Temperature: 23degree C	Air Pressure: 101.2kPa	Relative Humidity: 50%	Mains Power Supply: 230V
Remarks:			

Series resistance	Rise time	Limit	Drops time	Limit	Verdict
Condition 6: Series resistance: 400 Ohm, t1-t0: 0.02s, t2-t01: 500.00 ms, t3-t01: 1.20 s, If2: 47.20 mA, If1: 0.0472A					Pass
400 Ohm	3.04 ms	20 ms	< 20 us	7 ms	Pass

<b>Test specification:</b>	<b>4.7.1 DC characteristics</b>		
<b>Test purpose:</b>	To verify the steady-state DC loop characteristics		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 17:31:55		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Current  $\pm 1.23\%$

Voltage  $\pm 1.1\%$

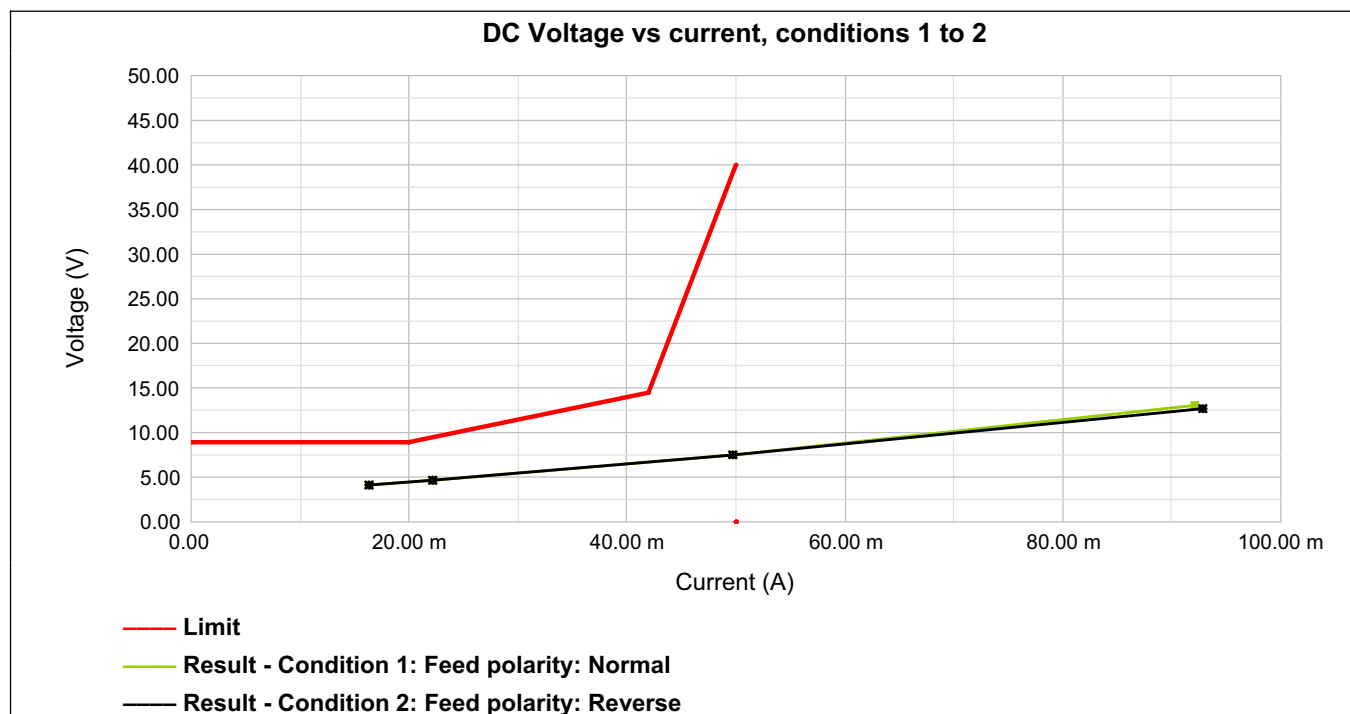
### General parameters

Parameter	Value
Feed voltage	50 V
Current stability	0.50%
Setting time	3 s
Delay after line seizure	1.20 s

### Test ranges

Feed Resistance		
Start	Stop	Step
400 Ohm	400 Ohm	0 Ohm
850 Ohm	850 Ohm	0 Ohm
2.05 kOhm	2.05 kOhm	0 Ohm
2.8 kOhm	2.8 kOhm	0 Ohm

<b>Test specification:</b>	<b>4.7.1 DC characteristics</b>		
<b>Test purpose:</b>	To verify the steady-state DC loop characteristics		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 17:31:55		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			



#### DC Voltage vs current

Current	Voltage	Limit	Verdict
<b>Condition 1: Feed polarity: Normal</b>			
16.40 mA	4.03 V	9 V	Pass
22.11 mA	4.60 V	9.53 V	Pass
49.74 mA	7.57 V	39.18 V	Pass
92.20 mA	13.05 V	-	Pass
<b>Condition 2: Feed polarity: Reverse</b>			
16.40 mA	4.03 V	9 V	Pass
22.11 mA	4.59 V	9.53 V	Pass
49.78 mA	7.54 V	39.3 V	Pass
92.92 mA	12.76 V	-	Pass

<b>Test specification:</b>	<b>4.7.2 Impedance</b>		
<b>Test purpose:</b>	To verify that the return loss of the input impedance of the TE in relation to the reference impedance is not less than 6 dB at 200 - 300 Hz and not less than 8 dB at 300 - 4000 Hz.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 17:41:59		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

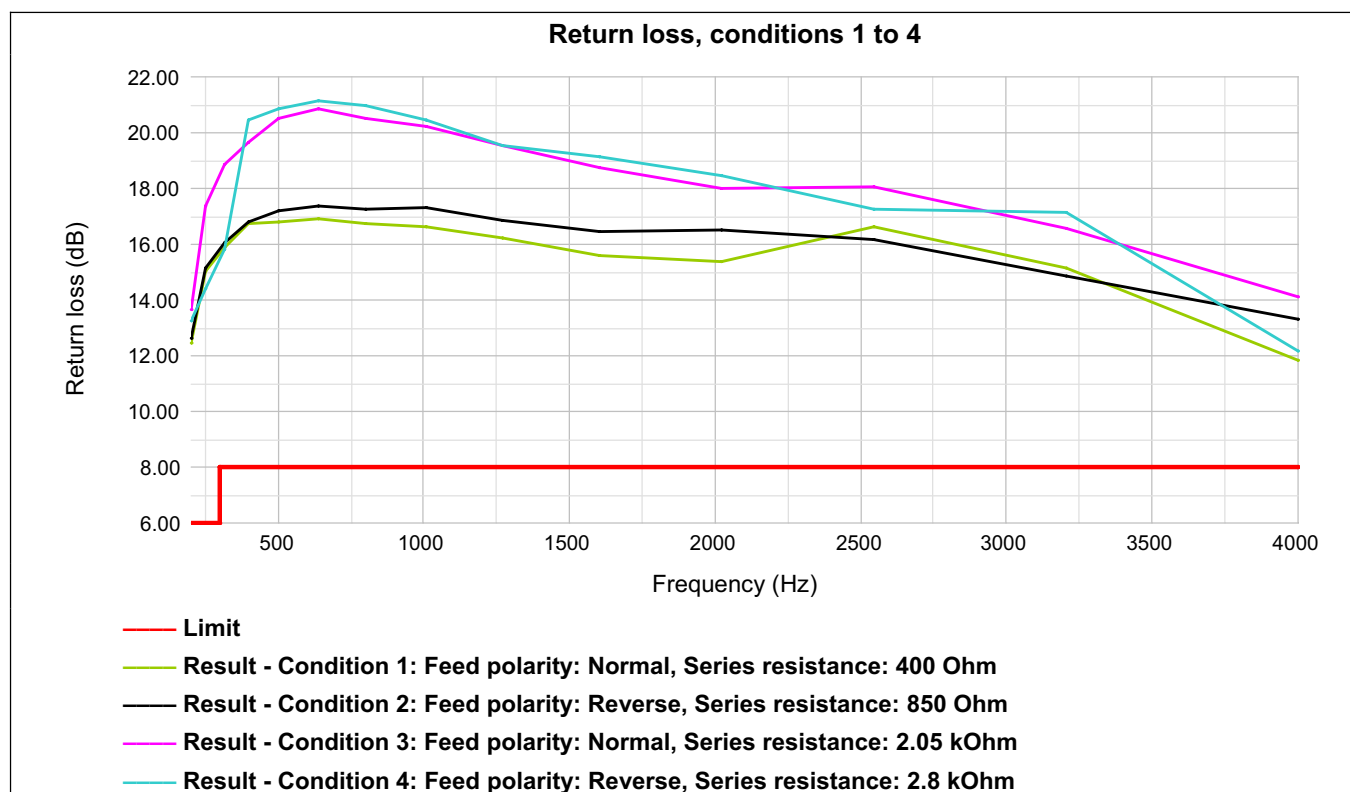
### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Impedance (50 to 2000 ohm)	±0.42%
Phase (50 to 2000 ohm)	±0.5%
Return Loss (0 to 30 dB RL)	±0.32dB
Return Loss (30 to 40 dB RL)	±1.3dB

### General parameters

Parameter	Value
Termination	270 Ohm + 750 Ohm    0.15 uF VF
Feed voltage	50 V
Test Voltage	316 mV



<b>Test specification:</b>	<b>4.7.2 Impedance</b>		
<b>Test purpose:</b>	To verify that the return loss of the input impedance of the TE in relation to the reference impedance is not less than 6 dB at 200 - 300 Hz and not less than 8 dB at 300 - 4000 Hz.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 17:41:59		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Return loss

Frequency	Return loss	Limit	Verdict
<b>Condition 1: Feed polarity: Normal, Series resistance: 400 Ohm</b>			<b>Pass</b>
200 Hz	12.44 dB	6 dB	Pass
252 Hz	15.03 dB	6 dB	Pass
318 Hz	15.87 dB	8 dB	Pass
400 Hz	16.73 dB	8 dB	Pass
504 Hz	16.81 dB	8 dB	Pass
635 Hz	16.90 dB	8 dB	Pass
801 Hz	16.75 dB	8 dB	Pass
1009 Hz	16.61 dB	8 dB	Pass
1271 Hz	16.20 dB	8 dB	Pass
1603 Hz	15.58 dB	8 dB	Pass
2020 Hz	15.35 dB	8 dB	Pass
2545 Hz	16.64 dB	8 dB	Pass
3205 Hz	15.15 dB	8 dB	Pass
4000 Hz	11.81 dB	8 dB	Pass
<b>Condition 2: Feed polarity: Reverse, Series resistance: 850 Ohm</b>			<b>Pass</b>
200 Hz	12.66 dB	6 dB	Pass
252 Hz	15.13 dB	6 dB	Pass
318 Hz	16.05 dB	8 dB	Pass
400 Hz	16.81 dB	8 dB	Pass
504 Hz	17.18 dB	8 dB	Pass
635 Hz	17.40 dB	8 dB	Pass
801 Hz	17.25 dB	8 dB	Pass
1009 Hz	17.30 dB	8 dB	Pass
1271 Hz	16.88 dB	8 dB	Pass
1603 Hz	16.47 dB	8 dB	Pass
2020 Hz	16.50 dB	8 dB	Pass
2545 Hz	16.16 dB	8 dB	Pass
3205 Hz	14.84 dB	8 dB	Pass
4000 Hz	13.30 dB	8 dB	Pass
<b>Condition 3: Feed polarity: Normal, Series resistance: 2.05 kOhm</b>			<b>Pass</b>
200 Hz	13.66 dB	6 dB	Pass
252 Hz	17.39 dB	6 dB	Pass
318 Hz	18.83 dB	8 dB	Pass
400 Hz	19.67 dB	8 dB	Pass



Test specification:	4.7.2 Impedance		
Test purpose:	To verify that the return loss of the input impedance of the TE in relation to the reference impedance is not less than 6 dB at 200 - 300 Hz and not less than 8 dB at 300 - 4000 Hz.		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	4/24/2008 17:41:59		
Temperature: 23degree C	Air Pressure: 101.2kPa	Relative Humidity: 50%	Mains Power Supply: 230V
Remarks:			

Frequency	Return loss	Limit	Verdict
504 Hz	20.51 dB	8 dB	Pass
635 Hz	20.88 dB	8 dB	Pass
801 Hz	20.51 dB	8 dB	Pass
1009 Hz	20.23 dB	8 dB	Pass
1271 Hz	19.53 dB	8 dB	Pass
1603 Hz	18.72 dB	8 dB	Pass
2020 Hz	18.01 dB	8 dB	Pass
2545 Hz	18.06 dB	8 dB	Pass
3205 Hz	16.54 dB	8 dB	Pass
4000 Hz	14.12 dB	8 dB	Pass
Condition 4: Feed polarity: Reverse, Series resistance: 2.8 kOhm			Pass
200 Hz	13.23 dB	6 dB	Pass
252 Hz	14.41 dB	6 dB	Pass
318 Hz	15.81 dB	8 dB	Pass
400 Hz	20.45 dB	8 dB	Pass
504 Hz	20.85 dB	8 dB	Pass
635 Hz	21.15 dB	8 dB	Pass
801 Hz	20.98 dB	8 dB	Pass
1009 Hz	20.45 dB	8 dB	Pass
1271 Hz	19.56 dB	8 dB	Pass
1603 Hz	19.15 dB	8 dB	Pass
2020 Hz	18.48 dB	8 dB	Pass
2545 Hz	17.28 dB	8 dB	Pass
3205 Hz	17.12 dB	8 dB	Pass
4000 Hz	12.19 dB	8 dB	Pass

<b>Test specification:</b>	<b>4.7.2 Reactive component of the impedance</b>		
<b>Test purpose:</b>	To verify that in the frequency range 200 Hz to 300 Hz, the reactive component of the impedance not exceed 500 Ohm inductive (+j 500).		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 17:44:57		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

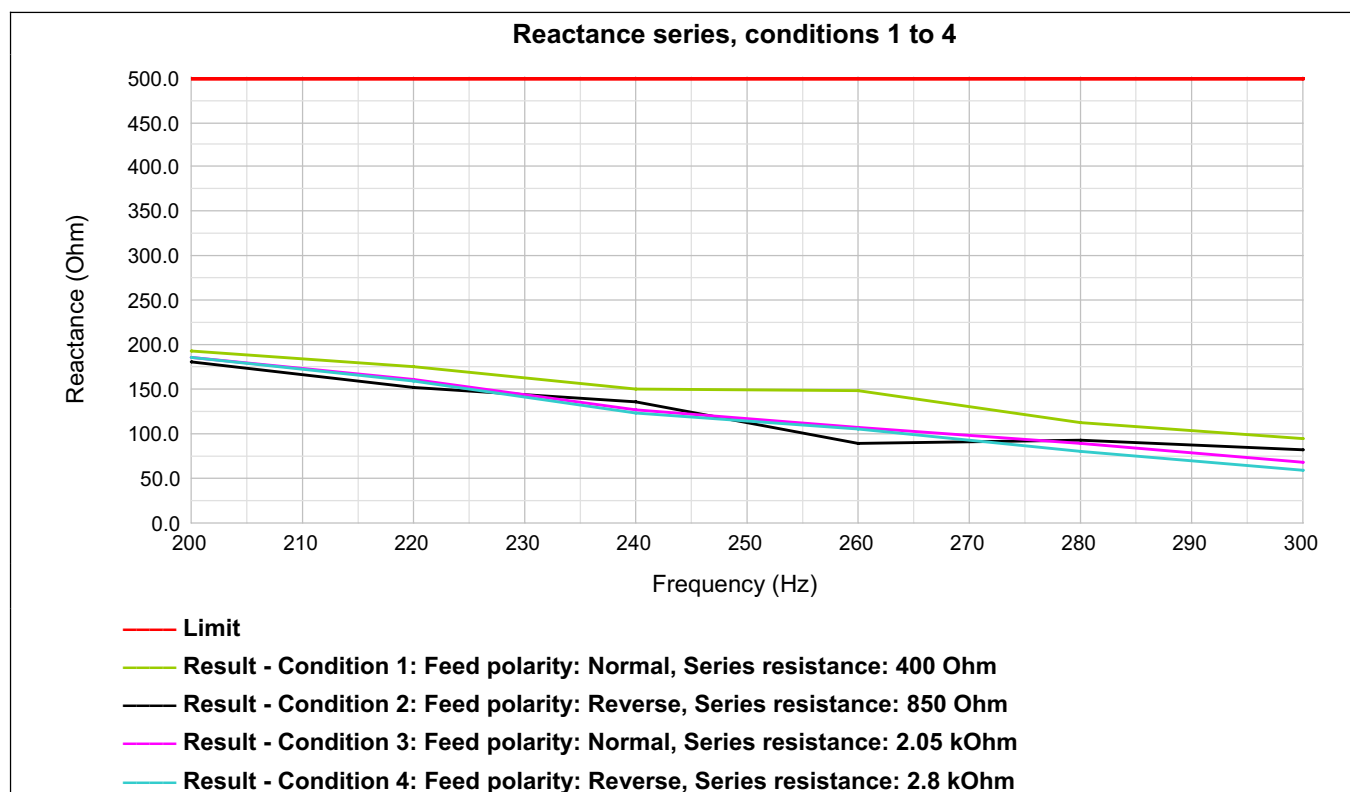
### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Impedance (50 to 2000 ohm)	±0.42%
Phase (50 to 2000 ohm)	±0.5%
Return Loss (0 to 30 dB RL)	±0.32dB
Return Loss (30 to 40 dB RL)	±1.3dB

### General parameters

Parameter	Value
Termination R1 + R2    C1	R1 = 270 Ohm, R2 = 750 Ohm, C1 = 150 nF
Feed voltage	50 V
Test Voltage	316 mV





<b>Test specification:</b>	<b>4.7.2 Reactive component of the impedance</b>		
<b>Test purpose:</b>	To verify that in the frequency range 200 Hz to 300 Hz, the reactive component of the impedance not exceed 500 Ohm inductive (+j 500).		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 17:44:57		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

#### Impedance, Phase, Reactance series

Frequency	Impedance	Phase	Reactance	Limit	Verdict
<b>Condition 1: Feed polarity: Normal, Series resistance: 400 Ohm</b>					<b>Pass</b>
200 Hz	816.99 Ohm	13.6 Deg	192.4 Ohm	500 Ohm	Pass
220 Hz	837.42 Ohm	12.1 Deg	175.6 Ohm	500 Ohm	Pass
240 Hz	832.92 Ohm	10.4 Deg	150.8 Ohm	500 Ohm	Pass
260 Hz	845.43 Ohm	10.2 Deg	149.2 Ohm	500 Ohm	Pass
280 Hz	844.94 Ohm	7.7 Deg	113.2 Ohm	500 Ohm	Pass
300 Hz	845.27 Ohm	6.5 Deg	95.7 Ohm	500 Ohm	Pass
<b>Condition 2: Feed polarity: Reverse, Series resistance: 850 Ohm</b>					<b>Pass</b>
200 Hz	806.78 Ohm	13 Deg	181.4 Ohm	500 Ohm	Pass
220 Hz	814.78 Ohm	10.8 Deg	152.3 Ohm	500 Ohm	Pass
240 Hz	810.42 Ohm	9.6 Deg	135.4 Ohm	500 Ohm	Pass
260 Hz	829.20 Ohm	6.2 Deg	89.3 Ohm	500 Ohm	Pass
280 Hz	831.51 Ohm	6.5 Deg	93.7 Ohm	500 Ohm	Pass
300 Hz	829.32 Ohm	5.7 Deg	81.8 Ohm	500 Ohm	Pass
<b>Condition 3: Feed polarity: Normal, Series resistance: 2.05 kOhm</b>					<b>Pass</b>
200 Hz	944.37 Ohm	11.4 Deg	186.1 Ohm	500 Ohm	Pass
220 Hz	972.45 Ohm	9.5 Deg	161.0 Ohm	500 Ohm	Pass
240 Hz	963.17 Ohm	7.5 Deg	126.3 Ohm	500 Ohm	Pass
260 Hz	975.53 Ohm	6.3 Deg	107.5 Ohm	500 Ohm	Pass
280 Hz	973.59 Ohm	5.3 Deg	89.4 Ohm	500 Ohm	Pass
300 Hz	974.18 Ohm	4 Deg	68.6 Ohm	500 Ohm	Pass
<b>Condition 4: Feed polarity: Reverse, Series resistance: 2.8 kOhm</b>					<b>Pass</b>
200 Hz	965.04 Ohm	11.1 Deg	185.9 Ohm	500 Ohm	Pass
220 Hz	963.66 Ohm	9.5 Deg	158.6 Ohm	500 Ohm	Pass
240 Hz	968.72 Ohm	7.3 Deg	123.5 Ohm	500 Ohm	Pass
260 Hz	979.37 Ohm	6.2 Deg	105.4 Ohm	500 Ohm	Pass
280 Hz	979.87 Ohm	4.7 Deg	79.9 Ohm	500 Ohm	Pass
300 Hz	978.78 Ohm	3.5 Deg	59.3 Ohm	500 Ohm	Pass

<b>Test specification:</b>	<b>4.8.2.1 Frequency combinations. 4.8.2.4 Tone duration. 4.8.2.5 Pause duration</b>		
<b>Test purpose:</b>	To check whether the TE sends appropriate DTMF signal frequency combinations and to check whether the TE sends DTMF signals of the appropriate duration.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 17:47:57		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Frequency combinations	±0.03%
Absolute levels	±0.18dB
Unwanted frequency components	±1.3dB
Pause/tone durations	±2.32%

### General parameters

Parameter	Value
Series resistance	850 Ohm
Feed voltage	50 V
Required number	0123456789*#

### Received digits, High group frequency, High group frequency deviation, Low group frequency, Low group frequency deviation

DTMF Digit	Expected digit	High group frequency	High group freq. deviation	Low group frequency	Low group freq. deviation	Limit min	Limit max	Verdict
								<b>Pass</b>
0	0	1336.0 Hz	0.00 %	941.1 Hz	0.01 %	-1.5 %	1.5 %	Pass
1	1	1209.0 Hz	0.00 %	697.0 Hz	-0.00 %	-1.5 %	1.5 %	Pass
2	2	1336.0 Hz	0.00 %	697.0 Hz	-0.00 %	-1.5 %	1.5 %	Pass
3	3	1477.0 Hz	0.00 %	697.0 Hz	-0.00 %	-1.5 %	1.5 %	Pass
4	4	1209.0 Hz	0.00 %	770.0 Hz	0.01 %	-1.5 %	1.5 %	Pass
5	5	1336.0 Hz	0.00 %	770.0 Hz	0.01 %	-1.5 %	1.5 %	Pass
6	6	1477.0 Hz	0.00 %	770.0 Hz	0.01 %	-1.5 %	1.5 %	Pass
7	7	1209.0 Hz	0.00 %	852.0 Hz	0.00 %	-1.5 %	1.5 %	Pass
8	8	1336.0 Hz	0.00 %	852.0 Hz	0.00 %	-1.5 %	1.5 %	Pass
9	9	1477.0 Hz	0.00 %	852.0 Hz	0.00 %	-1.5 %	1.5 %	Pass
*	*	1209.0 Hz	0.00 %	941.1 Hz	0.01 %	-1.5 %	1.5 %	Pass
#	#	1477.0 Hz	0.00 %	941.1 Hz	0.01 %	-1.5 %	1.5 %	Pass



Test specification:	4.8.2.1 Frequency combinations. 4.8.2.4 Tone duration. 4.8.2.5 Pause duration		
Test purpose:	To check whether the TE sends appropriate DTMF signal frequency combinations and to check whether the TE sends DTMF signals of the appropriate duration.		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	4/24/2008 17:47:57		
Temperature: 23degree C	Air Pressure: 101.2kPa	Relative Humidity: 50%	Mains Power Supply: 230V
Remarks:			

**Tone duration, Pause duration**

DTMF Digit	Tone duration	Pause duration	Limit	Verdict
				<b>Pass</b>
0	99.7718 ms	86.8433 ms	65 ms	Pass
1	99.2745 ms	86.2485 ms	65 ms	Pass
2	89.1248 ms	228.228 ms	65 ms	Pass
3	89.0078 ms	508.365 ms	65 ms	Pass
4	87.9157 ms	349.333 ms	65 ms	Pass
5	89.2515 ms	266.906 ms	65 ms	Pass
6	88.9298 ms	608.429 ms	65 ms	Pass
7	89.349 ms	268.174 ms	65 ms	Pass
8	87.8963 ms	608.478 ms	65 ms	Pass
9	89.2905 ms	537.634 ms	65 ms	Pass
*	89.8463 ms	748.742 ms	65 ms	Pass
#	89.4465 ms			Pass

<b>Test specification:</b>	<b>4.8.2.2 Signalling levels. 4.8.2.3 Unwanted frequency components</b>		
<b>Test purpose:</b>	To check that the level of any tone in the DTMF high frequency group shall be -9 dBV +2/-2.5 dB and the level of any tone in the low frequency group shall be -11 dBV +2.5/-2 dB when the TE interface is terminated with the reference impedance ZR.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 17:51:17		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

Expanded uncertainty, k=2 (95% confidence):

Frequency combinations	±0.03%
Absolute levels	±0.18dB
Unwanted frequency components	±1.3dB
Pause/tone durations	±2.32%

### General parameters

Parameter	Value
Feed voltage	50 V
Termination	270 Ohm + 750 Ohm    0.15 uF VF
Required number	0123456789

### High group level, Low group level

DTMF Digit	High group level	Limit min	Limit max	Low group level	Limit min	Limit max	Verdict
<b>Condition 1: Feed polarity: Normal, Series resistance: 400 Ohm</b>							<b>Pass</b>
0	-7.71 dBV	-11.5 dBV	-7 dBV	-10.63 dBV	-13 dBV	-8.5 dBV	Pass
1	-7.40 dBV	-11.5 dBV	-7 dBV	-9.89 dBV	-13 dBV	-8.5 dBV	Pass
2	-7.71 dBV	-11.5 dBV	-7 dBV	-9.89 dBV	-13 dBV	-8.5 dBV	Pass
3	-8.01 dBV	-11.5 dBV	-7 dBV	-9.89 dBV	-13 dBV	-8.5 dBV	Pass
4	-7.41 dBV	-11.5 dBV	-7 dBV	-10.10 dBV	-13 dBV	-8.5 dBV	Pass
5	-7.72 dBV	-11.5 dBV	-7 dBV	-10.11 dBV	-13 dBV	-8.5 dBV	Pass
6	-8.02 dBV	-11.5 dBV	-7 dBV	-10.10 dBV	-13 dBV	-8.5 dBV	Pass
7	-7.41 dBV	-11.5 dBV	-7 dBV	-10.37 dBV	-13 dBV	-8.5 dBV	Pass
8	-7.72 dBV	-11.5 dBV	-7 dBV	-10.37 dBV	-13 dBV	-8.5 dBV	Pass
9	-8.02 dBV	-11.5 dBV	-7 dBV	-10.37 dBV	-13 dBV	-8.5 dBV	Pass
<b>Condition 2: Feed polarity: Reverse, Series resistance: 2.8 kOhm</b>							<b>Pass</b>
0	-7.93 dBV	-11.5 dBV	-7 dBV	-10.56 dBV	-13 dBV	-8.5 dBV	Pass
1	-7.56 dBV	-11.5 dBV	-7 dBV	-9.66 dBV	-13 dBV	-8.5 dBV	Pass
2	-7.94 dBV	-11.5 dBV	-7 dBV	-9.63 dBV	-13 dBV	-8.5 dBV	Pass
3	-8.34 dBV	-11.5 dBV	-7 dBV	-9.63 dBV	-13 dBV	-8.5 dBV	Pass
4	-7.55 dBV	-11.5 dBV	-7 dBV	-9.93 dBV	-13 dBV	-8.5 dBV	Pass
5	-7.94 dBV	-11.5 dBV	-7 dBV	-9.91 dBV	-13 dBV	-8.5 dBV	Pass
6	-8.33 dBV	-11.5 dBV	-7 dBV	-9.89 dBV	-13 dBV	-8.5 dBV	Pass

<b>Test specification:</b>	<b>4.8.2.2 Signalling levels. 4.8.2.3 Unwanted frequency components</b>		
<b>Test purpose:</b>	To check that the level of any tone in the DTMF high frequency group shall be -9 dBV +2/-2.5 dB and the level of any tone in the low frequency group shall be -11 dBV +2.5/-2 dB when the TE interface is terminated with the reference impedance ZR.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 17:51:17		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

DTMF Digit	High group level	Limit min	Limit max	Low group level	Limit min	Limit max	Verdict
7	-7.54 dBV	-11.5 dBV	-7 dBV	-10.25 dBV	-13 dBV	-8.5 dBV	Pass
8	-7.93 dBV	-11.5 dBV	-7 dBV	-10.23 dBV	-13 dBV	-8.5 dBV	Pass
9	-8.32 dBV	-11.5 dBV	-7 dBV	-10.22 dBV	-13 dBV	-8.5 dBV	Pass

#### Level difference, Unwanted frequency components

DTMF Digit	Difference	Limit min	Limit max	Unwanted freq. components	Limit	Verdict
<b>Condition 1: Feed polarity: Normal, Series resistance: 400 Ohm</b>						<b>Pass</b>
0	2.91 dB	1 dB	4 dB	39.37 dB	20 dB	Pass
1	2.49 dB	1 dB	4 dB	40.11 dB	20 dB	Pass
2	2.18 dB	1 dB	4 dB	40.11 dB	20 dB	Pass
3	1.88 dB	1 dB	4 dB	40.11 dB	20 dB	Pass
4	2.70 dB	1 dB	4 dB	39.90 dB	20 dB	Pass
5	2.39 dB	1 dB	4 dB	39.89 dB	20 dB	Pass
6	2.09 dB	1 dB	4 dB	39.90 dB	20 dB	Pass
7	2.96 dB	1 dB	4 dB	39.63 dB	20 dB	Pass
8	2.65 dB	1 dB	4 dB	39.63 dB	20 dB	Pass
9	2.35 dB	1 dB	4 dB	39.63 dB	20 dB	Pass
<b>Condition 2: Feed polarity: Reverse, Series resistance: 2.8 kOhm</b>						<b>Pass</b>
0	2.63 dB	1 dB	4 dB	39.44 dB	20 dB	Pass
1	2.10 dB	1 dB	4 dB	40.34 dB	20 dB	Pass
2	1.69 dB	1 dB	4 dB	40.37 dB	20 dB	Pass
3	1.29 dB	1 dB	4 dB	40.37 dB	20 dB	Pass
4	2.37 dB	1 dB	4 dB	40.07 dB	20 dB	Pass
5	1.97 dB	1 dB	4 dB	40.09 dB	20 dB	Pass
6	1.56 dB	1 dB	4 dB	40.11 dB	20 dB	Pass
7	2.70 dB	1 dB	4 dB	39.75 dB	20 dB	Pass
8	2.30 dB	1 dB	4 dB	39.77 dB	20 dB	Pass
9	1.89 dB	1 dB	4 dB	39.78 dB	20 dB	Pass

<b>Test specification:</b>	<b>4.9 Transition from loop to quiescent state</b>		
<b>Test purpose:</b>	To determine, whether the TE changes correctly from the loop to the quiescent state.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 17:52:31		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

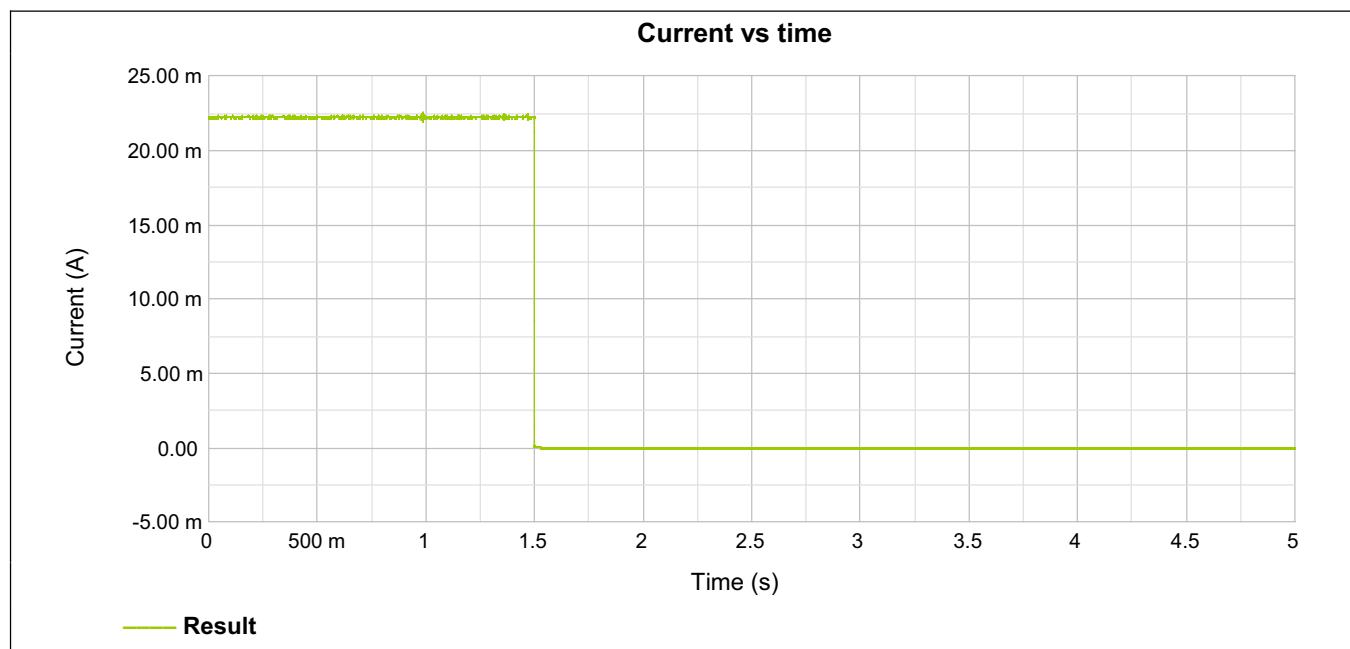
Expanded uncertainty, k=2 (95% confidence):

Current  $\pm 1.3\%$

Timing  $\pm 0.1\text{ms}$

### General parameters

Parameter	Value
Series resistance	2.05 kOhm
Feed voltage	50 V
Reference Level	0.01A
Ref. Stability Interval	0.02s
Drop Level	0.0005A
Ext. Stability Interval	20.00 ms



### Drop time, Extended drop time

Drop time	Limit	Extended drop time	Limit	Verdict
60 us	200 ms	> 3.5 s	1.5 s	Pass



Intertek Testing Services Hong Kong Ltd.  
2/F, Garment Centre, 576 Castle Peak Road,  
Kowloon, Hong Kong  
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Fax. 27411693

Appendix 2

# TEST REPORT

**ACCORDING TO: TBR 38 May 1998**

**Attachment requirements for a terminal equipment incorporating an analogue handset function capable of supporting the justified case service when connected to the analogue interface of the PSTN in Europe**

**FOR:**

**CL-3337**

**DECT Phone**

This test report shall not be reproduced in any form except in full without the written approval of the Test Laboratory.



Table of contents

1 Client information ..... 3

2 Equipment Under Test..... 3

3 Manufacturer information ..... 3

4 Test project performance ..... 3

5 Test report summary..... 4

6 EUT description ..... 5

7 Test laboratory description..... 5

8 Test equipment used ..... 5

9 Test results summary ..... 6

10 Detailed test results ..... 7





## 1 Client information

**Client name:** Xingtel Xiamen Electronics Co., Ltd.  
**Address:** Xingtel Building, Chuangxin Road, Torch Hi-Tech, Industrial District, Xiamen, China  
**Telephone:** 86-592-5625929  
**Fax:** 86-592-6037860  
**E-mail:** [belinda@xingtel.com](mailto:belinda@xingtel.com)  
**Contact name:** Simon Liu

## 2 Equipment Under Test

**Product name:** N/A  
**Product type:** DECT Phone  
**Model(s):** CL-3337  
**Serial number:** N/A  
**Receipt date** 4/23/2008

## 3 Manufacturer information

**Manufacturer name:** Xingtel Xiamen Electronics Co., Ltd.  
**Address:** Xingtel Building, Chuangxin Road, Torch Hi-Tech, Industrial District, Xiamen, China  
**Telephone:** 86-592-5625929  
**Fax:** 86-592-6037860  
**E-Mail:** [belinda@xingtel.com](mailto:belinda@xingtel.com)  
**Contact name:** Simon Liu

## 4 Test project performance

**Project ID:** HK08041614-1  
**Location:** Intertek Testing Services Hong Kong Ltd. 2/F, Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong  
**Test started:** 4/24/2008  
**Test completed:** 4/29/2008  
**Test specification(s):** TBR 38 May 1998  
Attachment requirements for a terminal equipment incorporating an analogue handset function capable of supporting the justified case service when connected to the analogue interface of the PSTN in Europe  
**Test suite:** TBR 38 (Acoustic)



## 5 Test report summary

Testing was completed against all relevant requirements of the test standard. The results obtained indicate that the product under test complies in full with the requirements tested.

The test results relate only to the items tested.

A summary of the test status of the product under test with respect to each test requirement of the standard is provided in section 10 on page 7 of this report.

Detailed test results are presented in section 11 following page 8 of this report.

	Name and Title	Date	Signature
<b>Tested by:</b>	Cheung Ho Yin, Danny Engineer	29 April 2008	Sign On File
<b>Approved by:</b>	Leung Wai Leung, Tommy Senior Manager	29 April 2008	Sign On File



## 6 EUT description

DECT Phone



## 7 Test laboratory description

Intertek Testing Services Hong Kong Ltd.

## 8 Test equipment used

Description	Model	S/N	Hardware Rev.	Software Rev.	Last Calibration
Telecom Conformance Analyzer	Hermon Laboratories TCA 8200	8750	A4.04	2.2.35	12/7/2006 04:10:34



## 9 Test results summary

Test	Status
<b>4.2 Speech performance characteristics</b>	
<b>4.2.1 Sensitivity/frequency response</b>	
4.2.1.1 Sending Sensitivity	Pass
4.2.1.2 Receiving Sensitivity	Pass
<b>4.2.2 Sending and Receiving Loudness Ratings</b>	
4.2.2.1 Sending Loudness Rating	Pass
4.2.2.2 Receiving Loudness Rating	Pass
4.2.3 Sidetone	Pass
<b>4.2.4 Distortion</b>	
4.2.4.1 Sending Distortion	Pass
4.2.4.2 Receiving Distortion	Pass
<b>4.2.5 Linearity (variation of gain with input level)</b>	
4.2.5.1 Sending Linearity	Pass
4.2.5.2 Receiving Linearity	Pass
<b>4.2.6 Noise</b>	
4.2.6.1 Sending Noise	Pass
4.2.6.2 Receiving Noise	Pass
4.2.7 Instability	Pass
4.2.8 Echo Return Loss	Pass

## 10 Detailed test results

<b>Test specification:</b>	<b>4.2.1.1 Sending Sensitivity</b>		
<b>Test purpose:</b>	The TE shall have a sensitivity/frequency response compatible with the network and with other telephones connected to the network so as to be capable of providing adequate speech performance		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:07:01		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

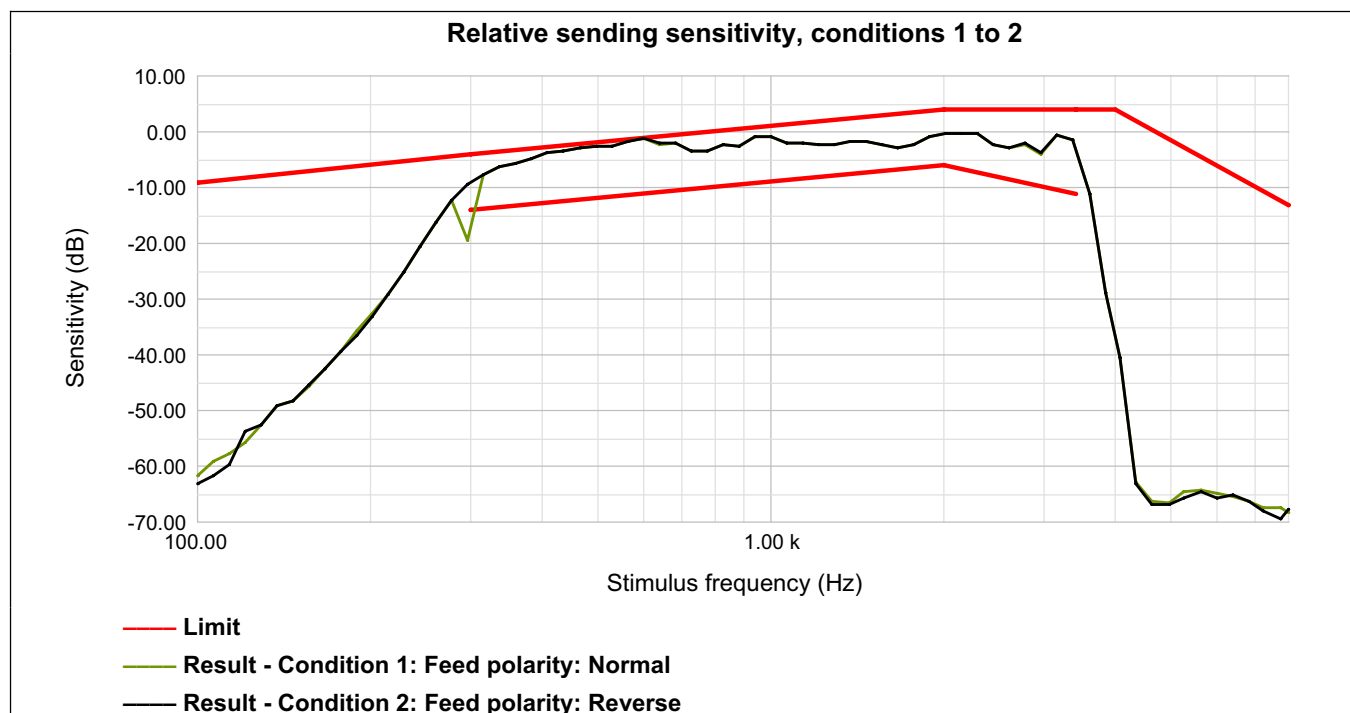
### Measurement uncertainty

Expanded Uncertainty, k=2 (95% confidence):

Sensitivity =  $\pm 0.85$  dB

### General parameters

Parameter	Value
Series resistance	1 kOhm
Feed voltage	50 V
Termination	600 Ohm VF
Stimulus sound pressure	-4.70 dBPa



<b>Test specification:</b>	<b>4.2.1.2 Receiving Sensitivity</b>		
<b>Test purpose:</b>	Interworking of terminal equipment via the public telecommunications network requires the TE to have a sensitivity/frequency response compatible with the network and with other telephones connected to the network so as to be capable of providing adequate speech performance.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/30/2008 16:35:02		
<b>Temperature:</b>	<b>Air Pressure:</b>	<b>Relative Humidity:</b>	<b>Mains Power Supply:</b>
<b>Remarks:</b>			

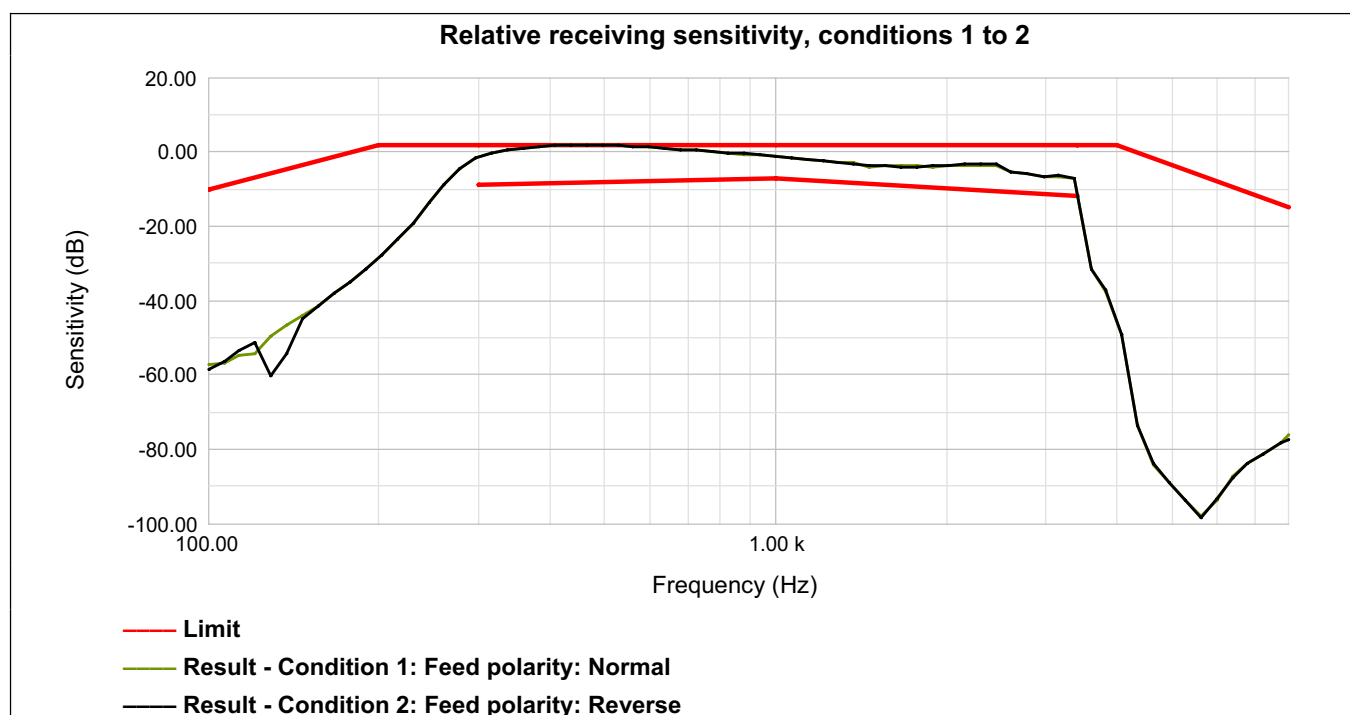
### Measurement uncertainty

Expanded Uncertainty, k=2 (95% confidence):

Sensitivity =  $\pm 0.23$  dB

### General parameters

Parameter	Value
Feed voltage	50 V
Series resistance	1 kOhm
Termination	600 Ohm VF
Stimulus level	-12.00 dBV
Fref	1 kHz
Fdrop	8 kHz





Test specification:	4.2.1.2 Receiving Sensitivity		
Test purpose:	Interworking of terminal equipment via the public telecommunications network requires the TE to have a sensitivity/frequency response compatible with the network and with other telephones connected to the network so as to be capable of providing adequate speech performance.		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	4/30/2008 16:35:02		
Temperature:	Air Pressure:	Relative Humidity:	Mains Power Supply:
Remarks:			

#### Sensitivity drop

Sensitivity drop	Limit	Verdict
Condition 1: Feed polarity: Normal		Pass
78.12 dB	20 dB	Pass
Condition 2: Feed polarity: Reverse		Pass
77.81 dB	20 dB	Pass



<b>Test specification:</b>	<b>4.2.2.1 Sending Loudness Rating</b>		
<b>Test purpose:</b>	The Sending Loudness Rating (SLR) shall be +3 dB $\pm$ 4 dB when measured with the feed resistance set to 2800 Ohm and 1000 Ohm and +3 dB + 7/- 4 dB when measured with the feed resistance set to 500 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:18:29		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

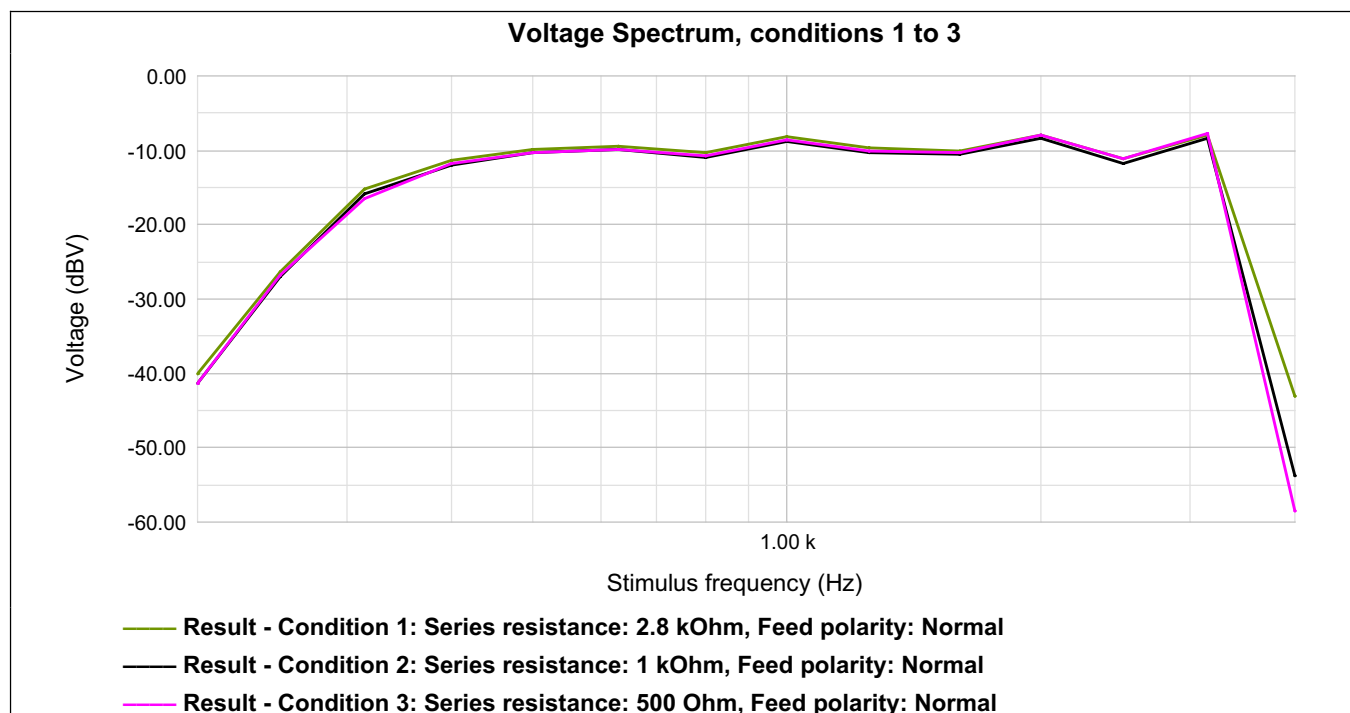
### Measurement uncertainty

Expanded Uncertainty, k=2 (95% confidence):

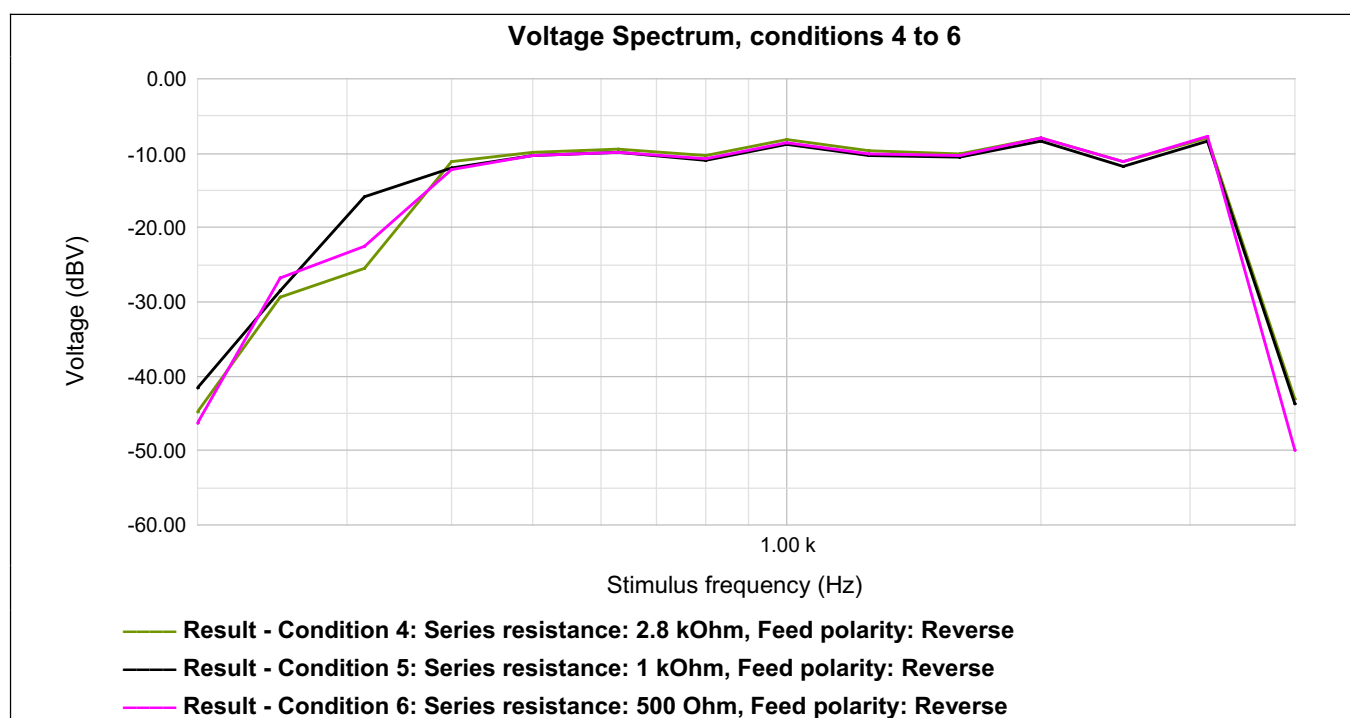
Sensitivity =  $\pm 0.85$  dB

### General parameters

Parameter	Value
Feed voltage	50 V
Off-hook state	Off-hook
Termination	600 Ohm VF
Stimulus sound pressure	-4.70 dBPa



<b>Test specification:</b>	<b>4.2.2.1 Sending Loudness Rating</b>		
<b>Test purpose:</b>	The Sending Loudness Rating (SLR) shall be +3 dB $\pm$ 4 dB when measured with the feed resistance set to 2800 Ohm and 1000 Ohm and +3 dB + 7/- 4 dB when measured with the feed resistance set to 500 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:18:29		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			



### Sending loudness rating

Loudness rating	Limit min	Limit max	Verdict
<b>Condition 1: Series resistance: 2.8 kOhm, Feed polarity: Normal</b>			<b>Pass</b>
1.46 dB	-1 dB	7 dB	Pass
<b>Condition 2: Series resistance: 1 kOhm, Feed polarity: Normal</b>			<b>Pass</b>
2.05 dB	-1 dB	7 dB	Pass
<b>Condition 3: Series resistance: 500 Ohm, Feed polarity: Normal</b>			<b>Pass</b>
1.87 dB	-1 dB	10 dB	Pass
<b>Condition 4: Series resistance: 2.8 kOhm, Feed polarity: Reverse</b>			<b>Pass</b>
2.06 dB	-1 dB	7 dB	Pass
<b>Condition 5: Series resistance: 1 kOhm, Feed polarity: Reverse</b>			<b>Pass</b>
2.12 dB	-1 dB	7 dB	Pass
<b>Condition 6: Series resistance: 500 Ohm, Feed polarity: Reverse</b>			<b>Pass</b>
2.26 dB	-1 dB	10 dB	Pass

<b>Test specification:</b>	<b>4.2.2.2 Receiving Loudness Rating</b>		
<b>Test purpose:</b>	The Receiving Loudness Rating shall be -8 dB $\pm$ 4 dB when measured with the feed resistance set to 2800 Ohm and 1000 Ohm and -8 dB + 7/- 4 dB when measured with the feed resistance set to 500 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/30/2008 16:39:46		
<b>Temperature:</b>	<b>Air Pressure:</b>	<b>Relative Humidity:</b>	<b>Mains Power Supply:</b>
<b>Remarks:</b>			

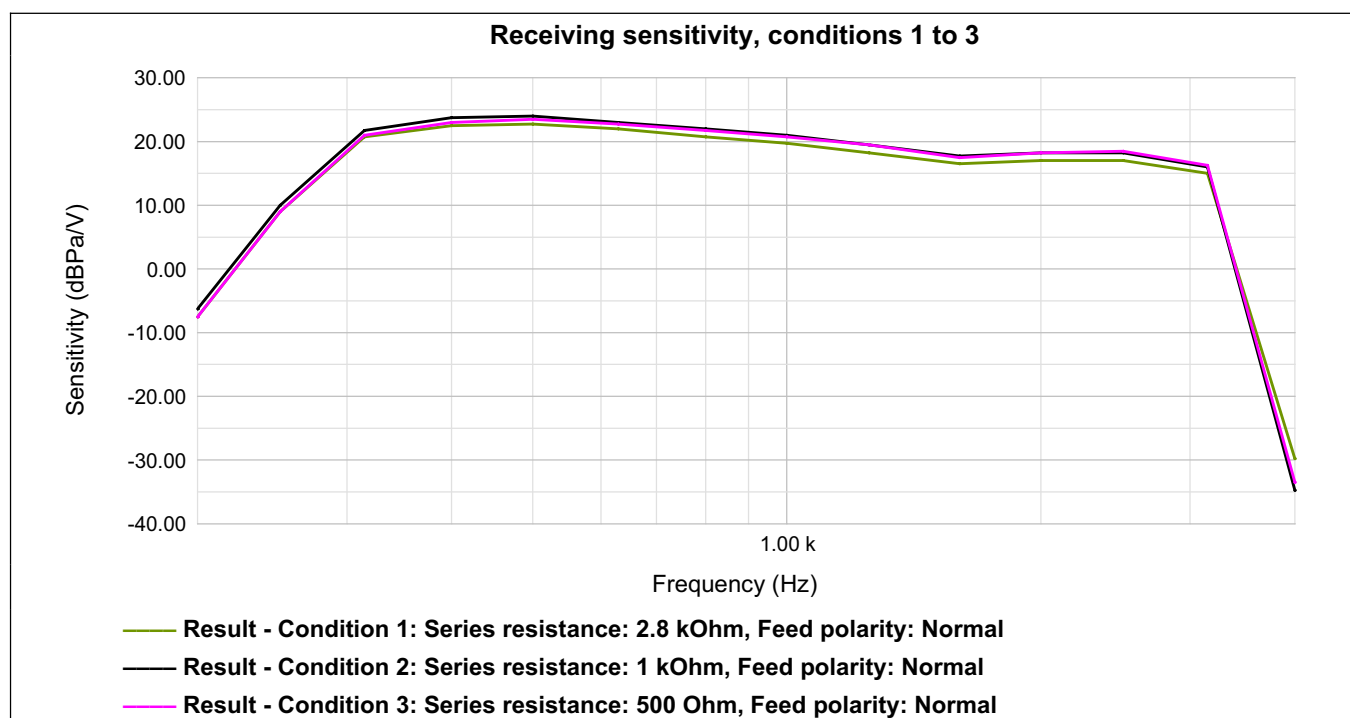
### Measurement uncertainty

Expanded Uncertainty, k=2 (95% confidence):

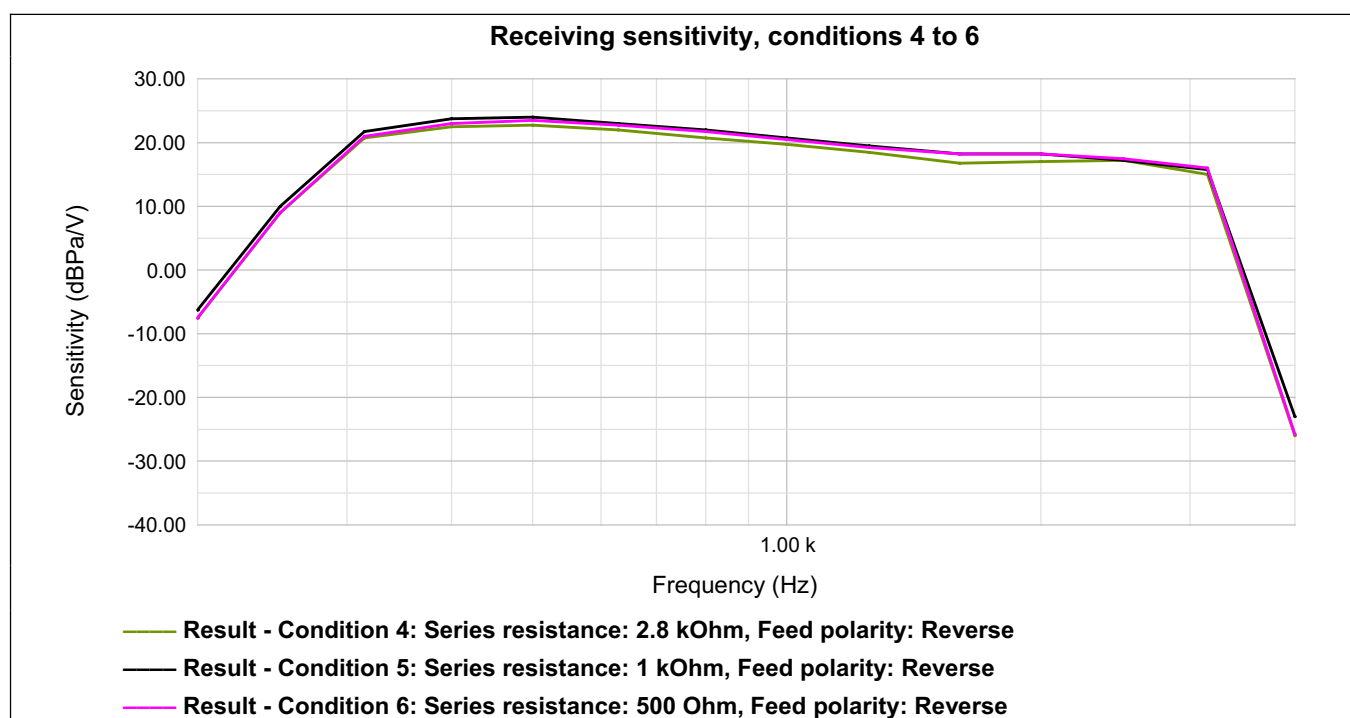
Sensitivity =  $\pm 0.23$  dB

### General parameters

Parameter	Value
Feed voltage	50 V
Termination	600 Ohm VF
Stimulus level	-12.00 dBV



<b>Test specification:</b>	<b>4.2.2.2 Receiving Loudness Rating</b>		
<b>Test purpose:</b>	The Receiving Loudness Rating shall be $-8 \text{ dB} \pm 4 \text{ dB}$ when measured with the feed resistance set to 2800 Ohm and 1000 Ohm and $-8 \text{ dB} + 7/-4 \text{ dB}$ when measured with the feed resistance set to 500 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/30/2008 16:39:46		
<b>Temperature:</b>	<b>Air Pressure:</b>	<b>Relative Humidity:</b>	<b>Mains Power Supply:</b>
<b>Remarks:</b>			



### Receiving loudness rating

Loudness rating	Limit min	Limit max	Verdict
<b>Condition 1: Series resistance: 2.8 kOhm, Feed polarity: Normal</b>			<b>Pass</b>
-8.02 dB	-12 dB	-4 dB	Pass
<b>Condition 2: Series resistance: 1 kOhm, Feed polarity: Normal</b>			<b>Pass</b>
-9.16 dB	-12 dB	-4 dB	Pass
<b>Condition 3: Series resistance: 500 Ohm, Feed polarity: Normal</b>			<b>Pass</b>
-8.79 dB	-12 dB	-1 dB	Pass
<b>Condition 4: Series resistance: 2.8 kOhm, Feed polarity: Reverse</b>			<b>Pass</b>
-8.04 dB	-12 dB	-4 dB	Pass
<b>Condition 5: Series resistance: 1 kOhm, Feed polarity: Reverse</b>			<b>Pass</b>
-9.18 dB	-12 dB	-4 dB	Pass
<b>Condition 6: Series resistance: 500 Ohm, Feed polarity: Reverse</b>			<b>Pass</b>
-8.79 dB	-12 dB	-1 dB	Pass

<b>Test specification:</b>	<b>4.2.3 Sidetone</b>		
<b>Test purpose:</b>	The TE shall have a sidetone performance which neither disturbs the user nor interferes with the speech levels to such an extent as to render the telephone incompatible with adequate speech performance.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:29:37		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

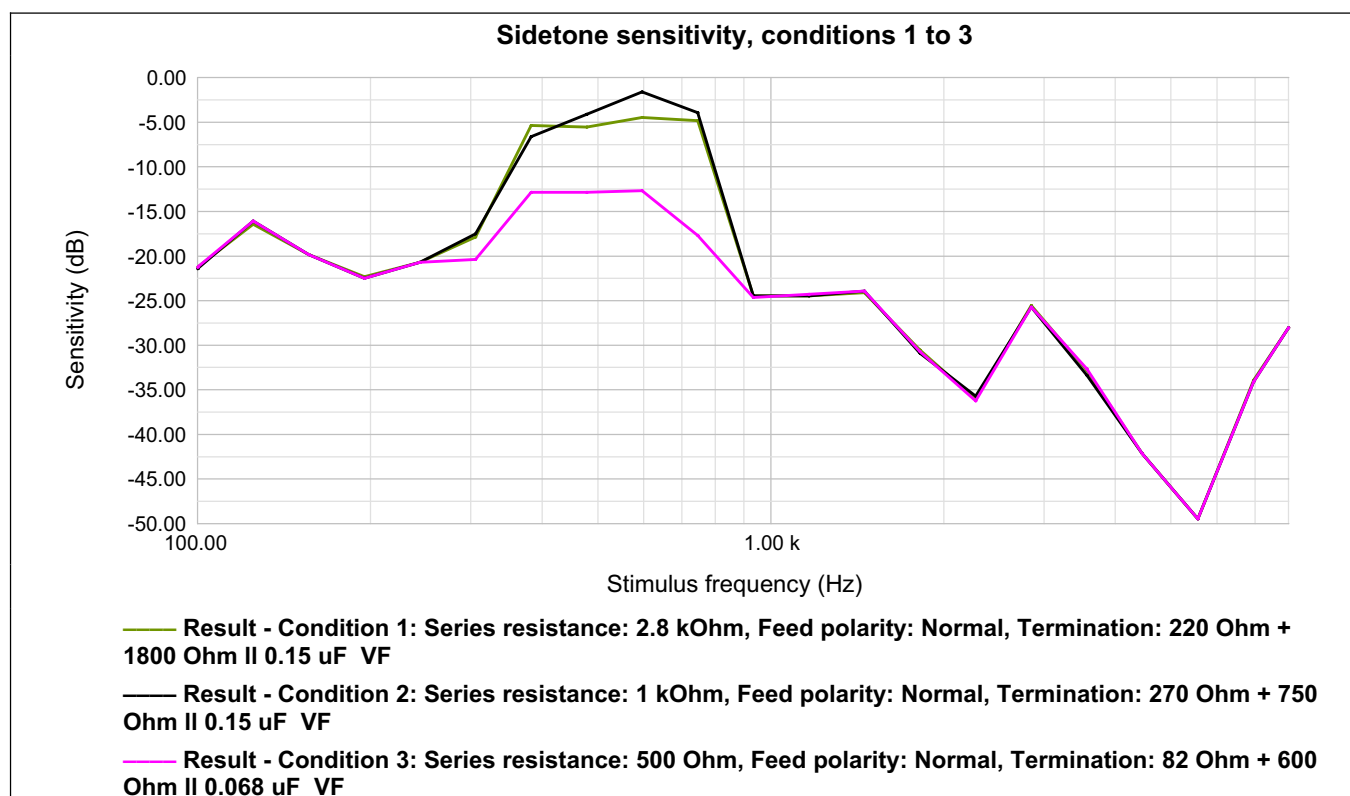
### Measurement uncertainty

Expanded Uncertainty, k=2 (95% confidence):

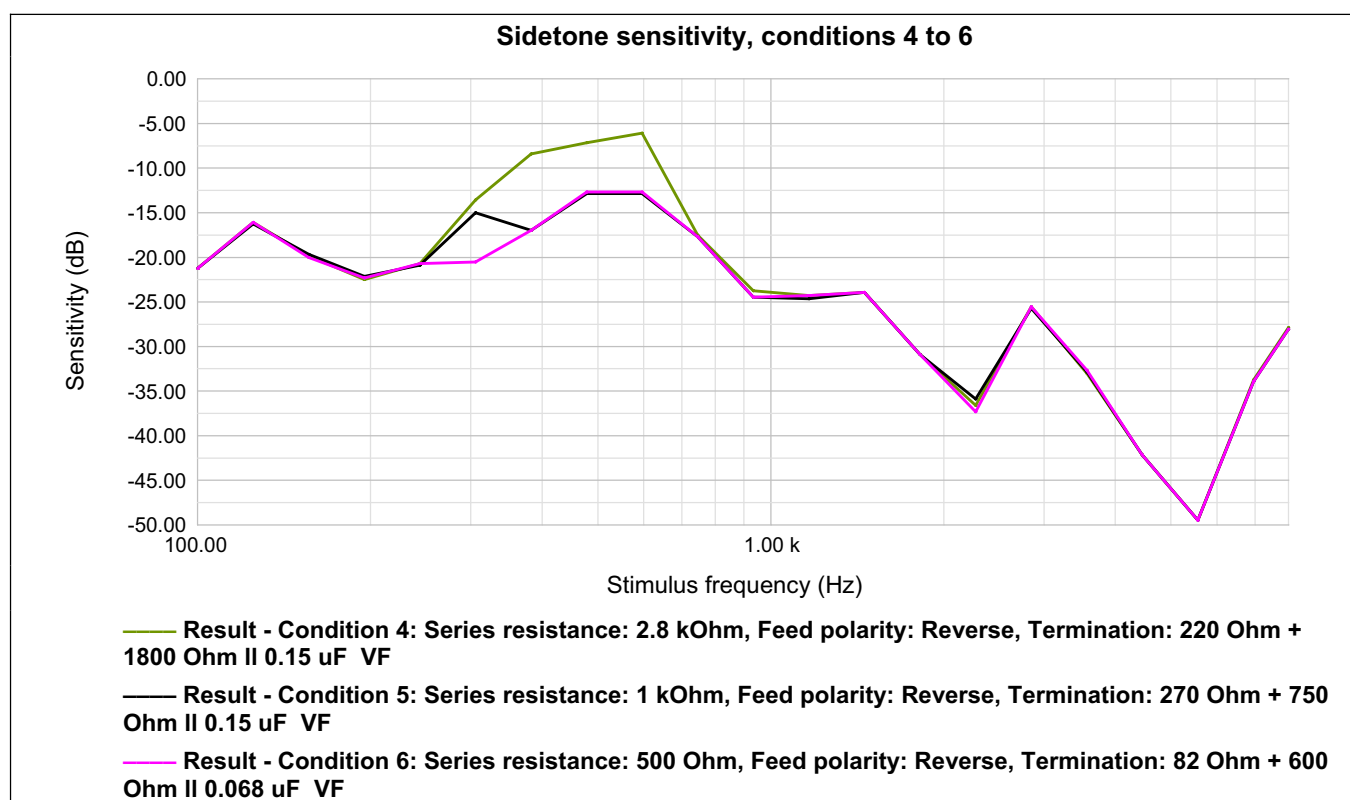
Sensitivity =  $\pm 0.92$  dB

### General parameters

Parameter	Value
Feed voltage	50 V
Stimulus sound pressure	-4.70 dBPa



<b>Test specification:</b>	<b>4.2.3 Sidetone</b>		
<b>Test purpose:</b>	The TE shall have a sidetone performance which neither disturbs the user nor interferes with the speech levels to such an extent as to render the telephone incompatible with adequate speech performance.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:29:37		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			



#### Sidetone masking ratio

STMR	Limit	Verdict
Condition 1: Series resistance: 2.8 kOhm, Feed polarity: Normal, Termination: 220 Ohm + 1800 Ohm    0.15 uF VF		Pass
26.55 dB	7 dB	Pass
Condition 2: Series resistance: 1 kOhm, Feed polarity: Normal, Termination: 270 Ohm + 750 Ohm    0.15 uF VF		Pass
26.15 dB	10 dB	Pass
Condition 3: Series resistance: 500 Ohm, Feed polarity: Normal, Termination: 82 Ohm + 600 Ohm    0.068 uF VF		Pass
29.27 dB	5 dB	Pass
Condition 4: Series resistance: 2.8 kOhm, Feed polarity: Reverse, Termination: 220 Ohm + 1800 Ohm    0.15 uF VF		Pass
28.10 dB	7 dB	Pass



<b>Test specification:</b>	<b>4.2.3 Sidetone</b>		
<b>Test purpose:</b>	The TE shall have a sidetone performance which neither disturbs the user nor interferes with the speech levels to such an extent as to render the telephone incompatible with adequate speech performance.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:29:37		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

STMR	Limit	Verdict
<b>Condition 5: Series resistance: 1 kOhm, Feed polarity: Reverse, Termination: 270 Ohm + 750 Ohm II 0.15 uF VF</b>		<b>Pass</b>
29.27 dB	10 dB	Pass
<b>Condition 6: Series resistance: 500 Ohm, Feed polarity: Reverse, Termination: 82 Ohm + 600 Ohm II 0.068 uF VF</b>		<b>Pass</b>
29.37 dB	5 dB	Pass

<b>Test specification:</b>	<b>4.2.4.1 Sending Distortion</b>		
<b>Test purpose:</b>	The "total" harmonic distortion (summed up to the 5th harmonic) for fundamental frequencies in the range 315 Hz to 1000 Hz shall be not greater than 7 % with an input of -4,7 dBPa when measured with a load of 600 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:34:43		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

Expanded Uncertainty, k=2 (95% confidence):

Voltage level =  $\pm 0.85$  dB

### General parameters

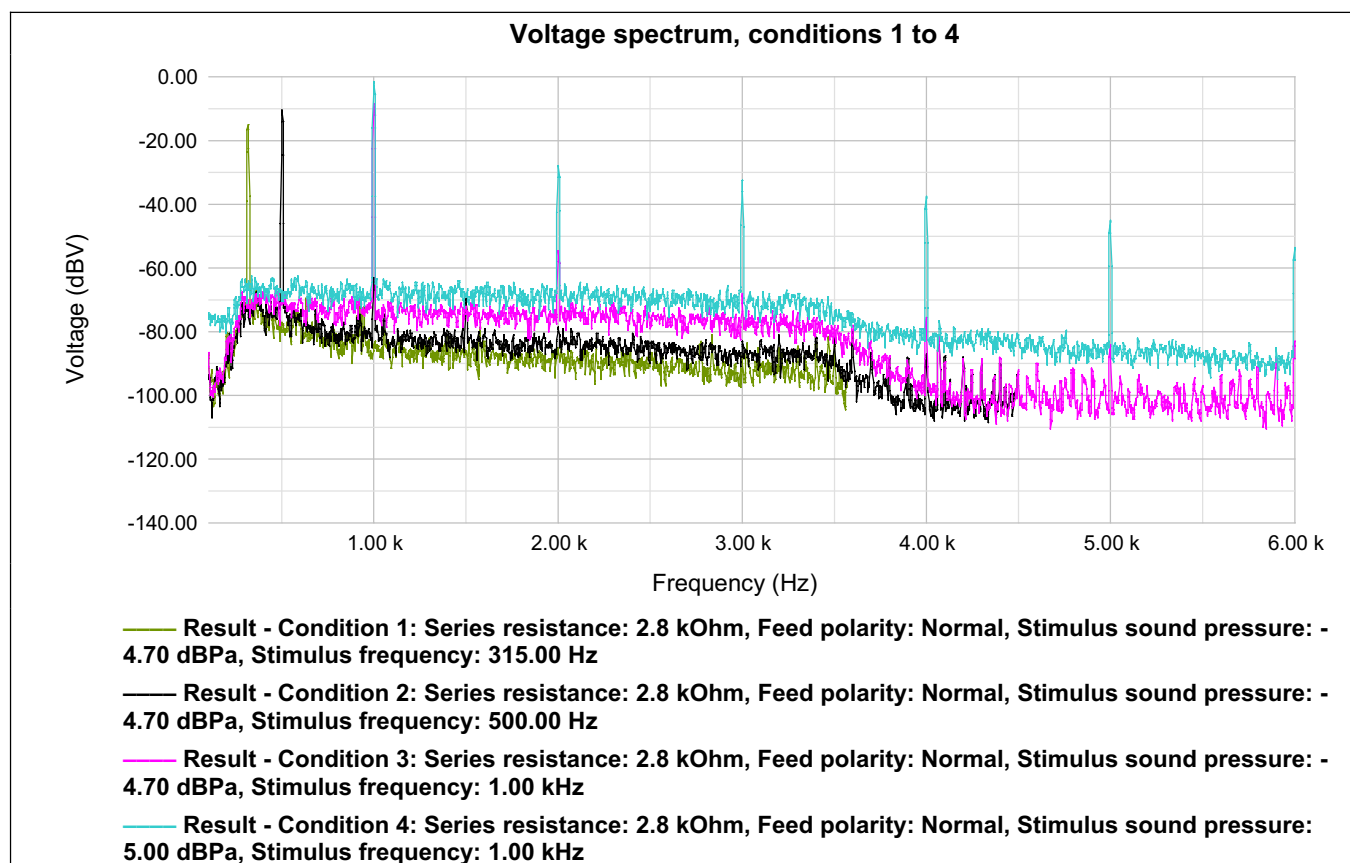
Parameter	Value
Feed voltage	50 V
Termination	600 Ohm VF
Total harmonics	5

### Test ranges

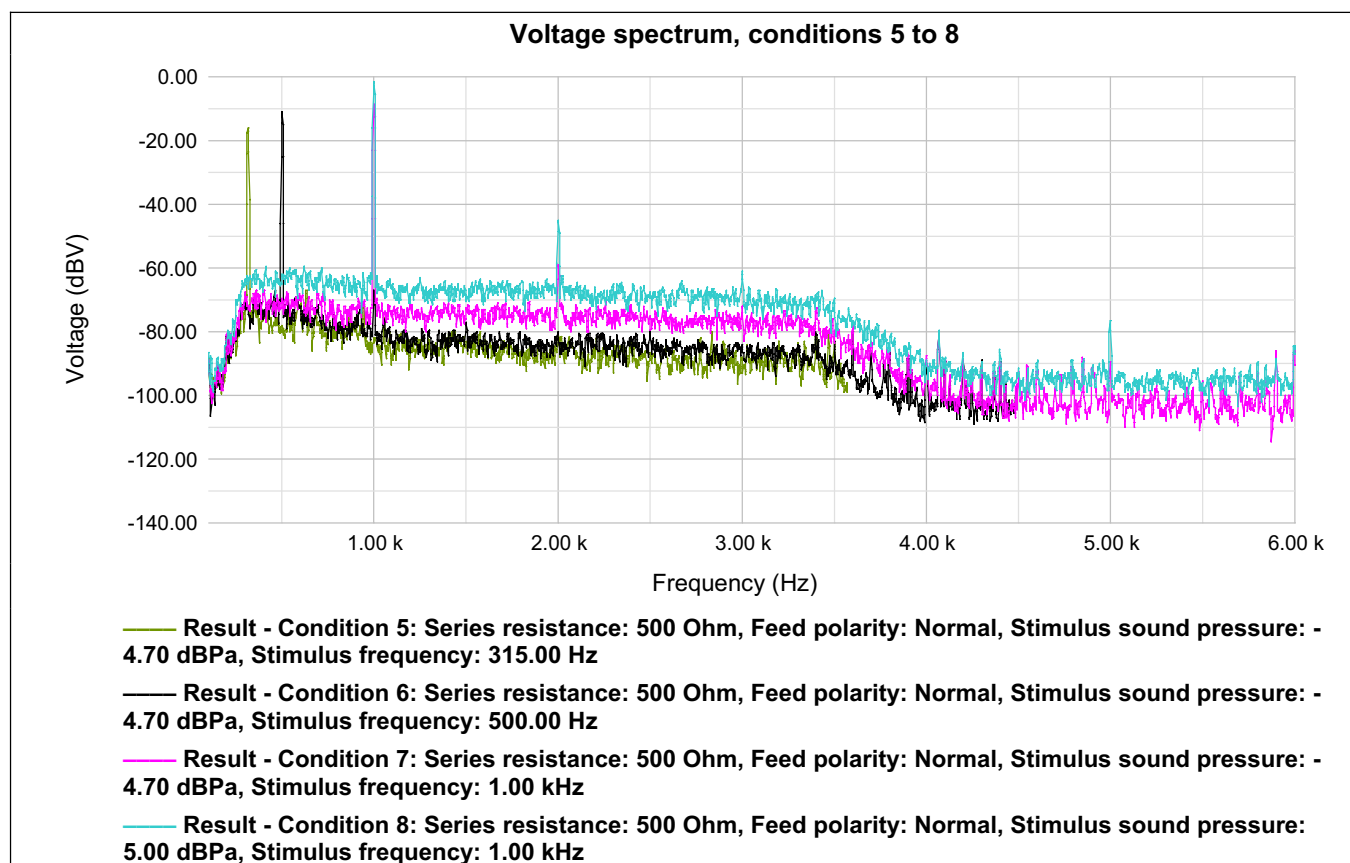
Frequency	
Start	Stop
100.00 Hz	6.00 kHz



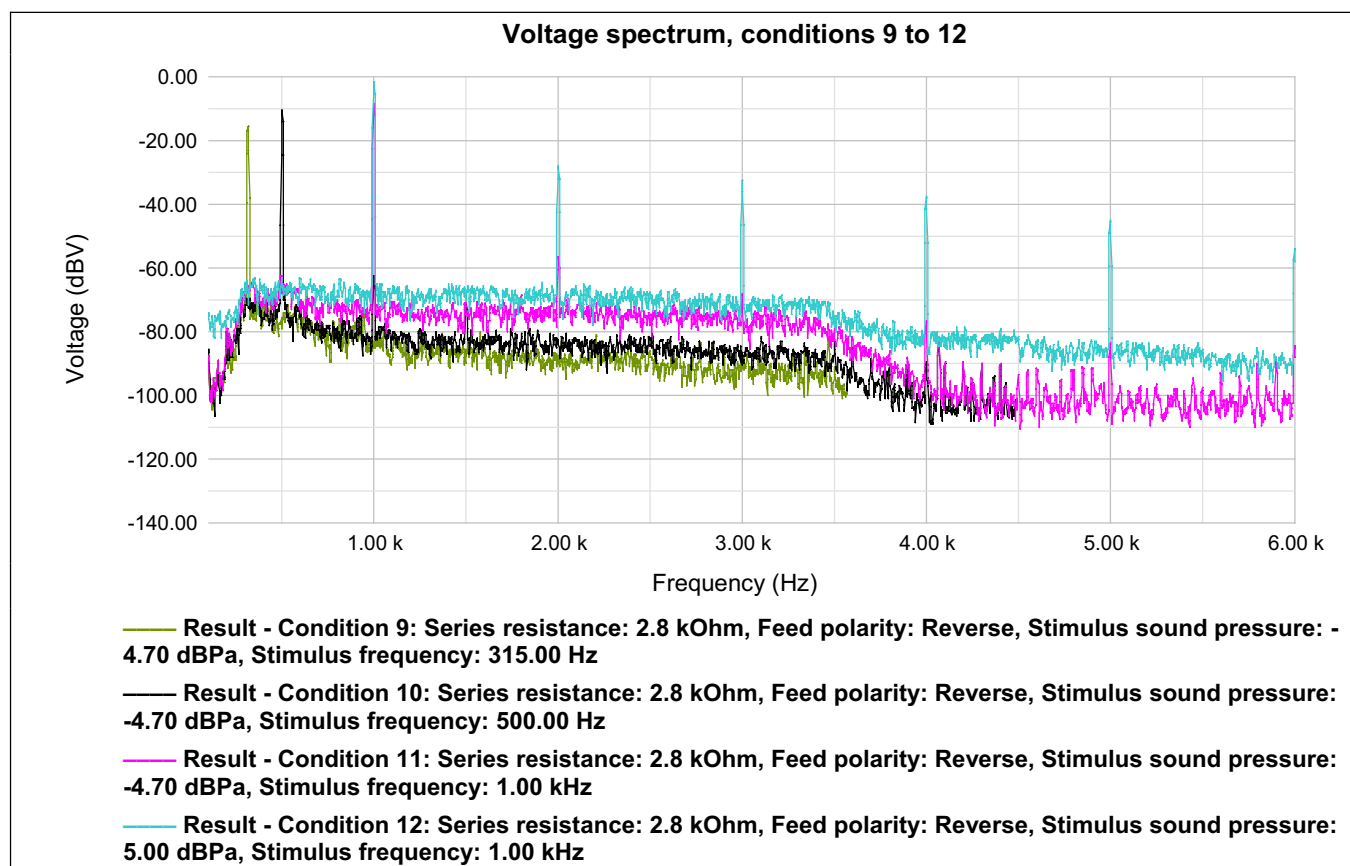
<b>Test specification:</b>	<b>4.2.4.1 Sending Distortion</b>		
<b>Test purpose:</b>	The "total" harmonic distortion (summed up to the 5th harmonic) for fundamental frequencies in the range 315 Hz to 1000 Hz shall be not greater than 7 % with an input of -4,7 dBPa when measured with a load of 600 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:34:43		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			



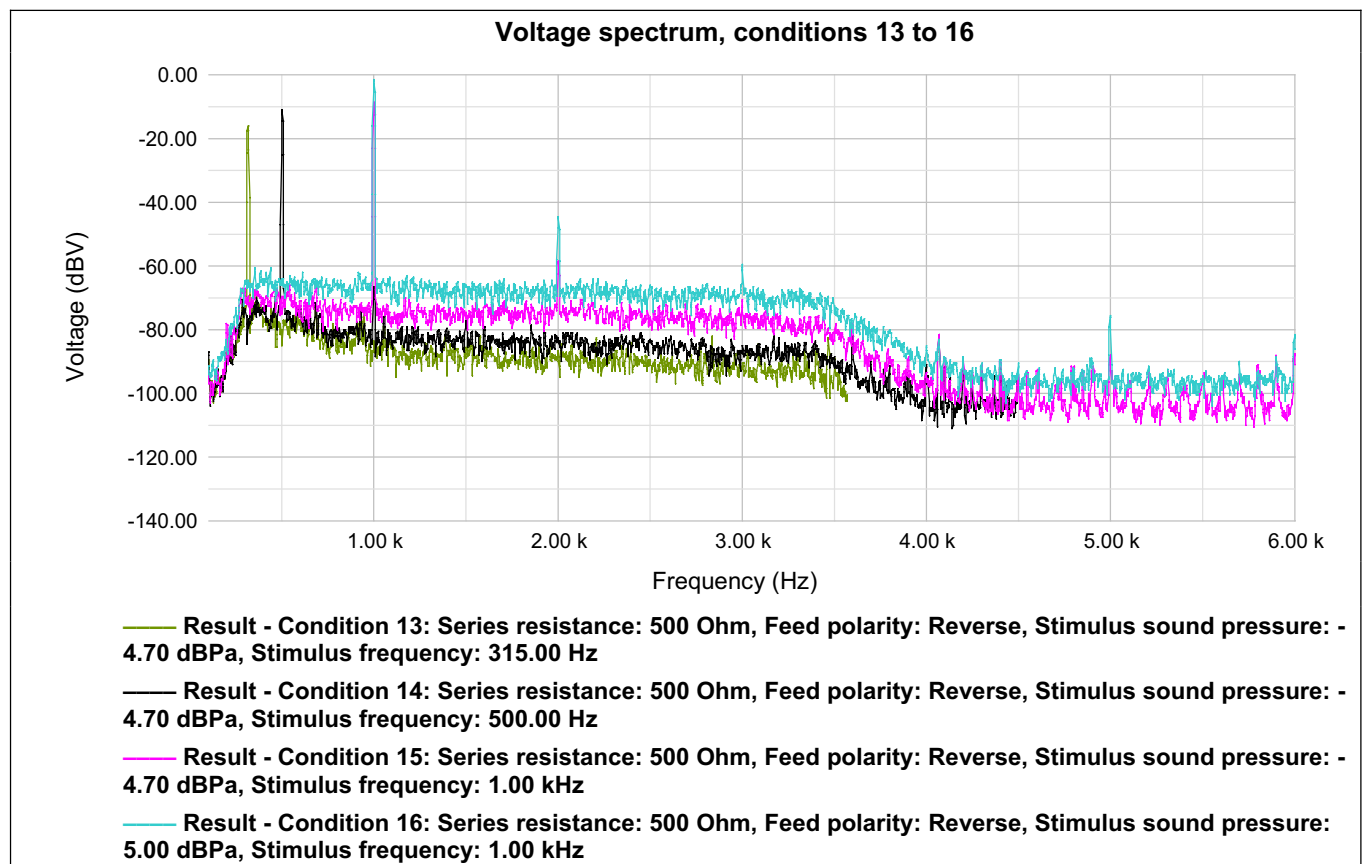
<b>Test specification:</b>	<b>4.2.4.1 Sending Distortion</b>		
<b>Test purpose:</b>	The "total" harmonic distortion (summed up to the 5th harmonic) for fundamental frequencies in the range 315 Hz to 1000 Hz shall be not greater than 7 % with an input of -4,7 dBPa when measured with a load of 600 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:34:43		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			



<b>Test specification:</b>	<b>4.2.4.1 Sending Distortion</b>		
<b>Test purpose:</b>	The "total" harmonic distortion (summed up to the 5th harmonic) for fundamental frequencies in the range 315 Hz to 1000 Hz shall be not greater than 7 % with an input of -4,7 dBPa when measured with a load of 600 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:34:43		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			



<b>Test specification:</b>	<b>4.2.4.1 Sending Distortion</b>		
<b>Test purpose:</b>	The "total" harmonic distortion (summed up to the 5th harmonic) for fundamental frequencies in the range 315 Hz to 1000 Hz shall be not greater than 7 % with an input of -4,7 dBPa when measured with a load of 600 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:34:43		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			



### Sending distortion

Distortion	Limit	Verdict
Condition 1: Series resistance: 2.8 kOhm, Feed polarity: Normal, Stimulus sound pressure: -4.70 dBPa, Stimulus frequency: 315.00 Hz		Pass
0.7 %	7 %	Pass
Condition 2: Series resistance: 2.8 kOhm, Feed polarity: Normal, Stimulus sound pressure: -4.70 dBPa, Stimulus frequency: 500.00 Hz		Pass
0.6 %	7 %	Pass
Condition 3: Series resistance: 2.8 kOhm, Feed polarity: Normal, Stimulus sound pressure: -4.70 dBPa, Stimulus frequency: 1.00 kHz		Pass
0.9 %	7 %	Pass
Condition 4: Series resistance: 2.8 kOhm, Feed polarity: Normal, Stimulus sound pressure: 5.00 dBPa, Stimulus frequency: 1.00 kHz		Pass
6.0 %	10 %	Pass

<b>Test specification:</b>	<b>4.2.4.1 Sending Distortion</b>		
<b>Test purpose:</b>	The "total" harmonic distortion (summed up to the 5th harmonic) for fundamental frequencies in the range 315 Hz to 1000 Hz shall be not greater than 7 % with an input of -4,7 dBPa when measured with a load of 600 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:34:43		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

Distortion	Limit	Verdict
<b>Condition 5: Series resistance: 500 Ohm, Feed polarity: Normal, Stimulus sound pressure: -4.70 dBPa, Stimulus frequency: 315.00 Hz</b>		<b>Pass</b>
2.1 %	7 %	Pass
<b>Condition 6: Series resistance: 500 Ohm, Feed polarity: Normal, Stimulus sound pressure: -4.70 dBPa, Stimulus frequency: 500.00 Hz</b>		<b>Pass</b>
0.6 %	7 %	Pass
<b>Condition 7: Series resistance: 500 Ohm, Feed polarity: Normal, Stimulus sound pressure: -4.70 dBPa, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
0.9 %	7 %	Pass
<b>Condition 8: Series resistance: 500 Ohm, Feed polarity: Normal, Stimulus sound pressure: 5.00 dBPa, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
1.1 %	10 %	Pass
<b>Condition 9: Series resistance: 2.8 kOhm, Feed polarity: Reverse, Stimulus sound pressure: -4.70 dBPa, Stimulus frequency: 315.00 Hz</b>		<b>Pass</b>
1.0 %	7 %	Pass
<b>Condition 10: Series resistance: 2.8 kOhm, Feed polarity: Reverse, Stimulus sound pressure: -4.70 dBPa, Stimulus frequency: 500.00 Hz</b>		<b>Pass</b>
0.6 %	7 %	Pass
<b>Condition 11: Series resistance: 2.8 kOhm, Feed polarity: Reverse, Stimulus sound pressure: -4.70 dBPa, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
1.0 %	7 %	Pass
<b>Condition 12: Series resistance: 2.8 kOhm, Feed polarity: Reverse, Stimulus sound pressure: 5.00 dBPa, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
5.8 %	10 %	Pass
<b>Condition 13: Series resistance: 500 Ohm, Feed polarity: Reverse, Stimulus sound pressure: -4.70 dBPa, Stimulus frequency: 315.00 Hz</b>		<b>Pass</b>
0.7 %	7 %	Pass
<b>Condition 14: Series resistance: 500 Ohm, Feed polarity: Reverse, Stimulus sound pressure: -4.70 dBPa, Stimulus frequency: 500.00 Hz</b>		<b>Pass</b>
0.5 %	7 %	Pass
<b>Condition 15: Series resistance: 500 Ohm, Feed polarity: Reverse, Stimulus sound pressure: -4.70 dBPa, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
0.9 %	7 %	Pass
<b>Condition 16: Series resistance: 500 Ohm, Feed polarity: Reverse, Stimulus sound pressure: 5.00 dBPa, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
1.1 %	10 %	Pass

<b>Test specification:</b>	<b>4.2.4.2 Receiving Distortion</b>		
<b>Test purpose:</b>	The "total" harmonic distortion (summed up to the 5th harmonic) for fundamental frequencies in the range 315 Hz to 1000 Hz shall be not greater than 7 %, when measured with an input e.m.f. of -12 dBV.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/30/2008 16:44:52		
<b>Temperature:</b>	<b>Air Pressure:</b>	<b>Relative Humidity:</b>	<b>Mains Power Supply:</b>
<b>Remarks:</b>			

### Measurement uncertainty

Expanded Uncertainty, k=2 (95% confidence):

Voltage level =  $\pm 0.23$  dB

### General parameters

Parameter	Value
Feed voltage	50 V
Termination	600 Ohm VF
Total harmonics	5

### Test ranges

Frequency	
Start	Stop
100.00 Hz	10.00 kHz

### Receiving distortion

Distortion	Limit	Verdict
<b>Condition 1: Series resistance: 2.8 kOhm, Feed polarity: Normal, Stimulus level: -12.00 dBV, Stimulus frequency: 315.00 Hz</b>		<b>Pass</b>
0.74%	7 %	Pass
<b>Condition 2: Series resistance: 2.8 kOhm, Feed polarity: Normal, Stimulus level: -12.00 dBV, Stimulus frequency: 500.00 Hz</b>		<b>Pass</b>
0.47%	7 %	Pass
<b>Condition 3: Series resistance: 2.8 kOhm, Feed polarity: Normal, Stimulus level: -12.00 dBV, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
0.86%	7 %	Pass
<b>Condition 4: Series resistance: 2.8 kOhm, Feed polarity: Normal, Stimulus level: 0.00 dBV, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
1.10%	10 %	Pass
<b>Condition 5: Series resistance: 500 Ohm, Feed polarity: Normal, Stimulus level: -12.00 dBV, Stimulus frequency: 315.00 Hz</b>		<b>Pass</b>
0.73%	7 %	Pass
<b>Condition 6: Series resistance: 500 Ohm, Feed polarity: Normal, Stimulus level: -12.00 dBV, Stimulus frequency: 500.00 Hz</b>		<b>Pass</b>
0.50%	7 %	Pass

<b>Test specification:</b>	<b>4.2.4.2 Receiving Distortion</b>		
<b>Test purpose:</b>	The "total" harmonic distortion (summed up to the 5th harmonic) for fundamental frequencies in the range 315 Hz to 1000 Hz shall be not greater than 7 %, when measured with an input e.m.f. of -12 dBV.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/30/2008 16:44:52		
<b>Temperature:</b>	<b>Air Pressure:</b>	<b>Relative Humidity:</b>	<b>Mains Power Supply:</b>
<b>Remarks:</b>			

Distortion	Limit	Verdict
<b>Condition 7: Series resistance: 500 Ohm, Feed polarity: Normal, Stimulus level: -12.00 dBV, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
0.83%	7 %	Pass
<b>Condition 8: Series resistance: 500 Ohm, Feed polarity: Normal, Stimulus level: 0.00 dBV, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
0.90%	10 %	Pass
<b>Condition 9: Series resistance: 2.8 kOhm, Feed polarity: Reverse, Stimulus level: -12.00 dBV, Stimulus frequency: 315.00 Hz</b>		<b>Pass</b>
0.73%	7 %	Pass
<b>Condition 10: Series resistance: 2.8 kOhm, Feed polarity: Reverse, Stimulus level: -12.00 dBV, Stimulus frequency: 500.00 Hz</b>		<b>Pass</b>
0.48%	7 %	Pass
<b>Condition 11: Series resistance: 2.8 kOhm, Feed polarity: Reverse, Stimulus level: -12.00 dBV, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
0.85%	7 %	Pass
<b>Condition 12: Series resistance: 2.8 kOhm, Feed polarity: Reverse, Stimulus level: 0.00 dBV, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
1.09%	10 %	Pass
<b>Condition 13: Series resistance: 500 Ohm, Feed polarity: Reverse, Stimulus level: -12.00 dBV, Stimulus frequency: 315.00 Hz</b>		<b>Pass</b>
0.73%	7 %	Pass
<b>Condition 14: Series resistance: 500 Ohm, Feed polarity: Reverse, Stimulus level: -12.00 dBV, Stimulus frequency: 500.00 Hz</b>		<b>Pass</b>
0.47%	7 %	Pass
<b>Condition 15: Series resistance: 500 Ohm, Feed polarity: Reverse, Stimulus level: -12.00 dBV, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
0.88%	7 %	Pass
<b>Condition 16: Series resistance: 500 Ohm, Feed polarity: Reverse, Stimulus level: 0.00 dBV, Stimulus frequency: 1.00 kHz</b>		<b>Pass</b>
0.89%	10 %	Pass

<b>Test specification:</b>	<b>4.2.5.1 Sending Linearity</b>		
<b>Test purpose:</b>	The sensitivity determined with an input sound pressure level of -4,7 dBP a shall not differ by more than $\pm 2$ dB from the sensitivity determined with an input sound pressure level of -19,7 dBP a when measured with a load of 600 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:40:29		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

Expanded Uncertainty, k=2 (95% confidence):

Sensitivity =  $\pm 0.85$  dB

### General parameters

Parameter	Value
Series resistance	1 kOhm
Termination	600 Ohm VF
Feed voltage	50 V
Stimulus frequency	1.00 kHz

### Sending linearity

Sending linearity	Limit min	Limit max	Verdict
<b>Condition 1: Feed polarity: Normal</b>			<b>Pass</b>
0.17 dB	-2 dB	2 dB	Pass
<b>Condition 2: Feed polarity: Reverse</b>			<b>Pass</b>
0.16 dB	-2 dB	2 dB	Pass

### Sending sensitivity

Stimulus sound pressure	Sensitivity	Verdict
<b>Condition 1: Feed polarity: Normal</b>		-
-19.70 dBP a	-4.32 dBV/Pa	-
-4.70 dBP a	-4.15 dBV/Pa	-
<b>Condition 2: Feed polarity: Reverse</b>		-
-19.70 dBP a	-4.32 dBV/Pa	-
-4.70 dBP a	-4.15 dBV/Pa	-



<b>Test specification:</b>	<b>4.2.5.2 Receiving Linearity</b>		
<b>Test purpose:</b>	The sensitivity determined with an input signal with an e.m.f. of -12 dBV shall not differ by more than $\pm 2$ dB from the sensitivity determined with an input signal with an e.m.f. of -32 dBV.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/30/2008 16:28:31		
<b>Temperature:</b>	<b>Air Pressure:</b>	<b>Relative Humidity:</b>	<b>Mains Power Supply:</b>
<b>Remarks:</b>			

### Measurement uncertainty

Expanded Uncertainty, k=2 (95% confidence):

Sensitivity =  $\pm 0.23$  dB

### General parameters

Parameter	Value
Series resistance	1 kOhm
Feed voltage	50 V
Stimulus frequency	1.00 kHz
Termination	600 Ohm VF

### Receiving linearity

Receiving linearity	Limit min	Limit max	Verdict
<b>Condition 1: Feed polarity: Normal</b>			<b>Pass</b>
1.49 dB	-2 dB	2 dB	Pass
<b>Condition 2: Feed polarity: Reverse</b>			<b>Pass</b>
1.59 dB	-2 dB	2 dB	Pass

### Receiving sensitivity

Stimulus level	Sensitivity	Verdict
<b>Condition 1: Feed polarity: Normal</b>		-
-32.00 dBV	19.17 dBPa/V	-
-12.00 dBV	20.65 dBPa/V	-
<b>Condition 2: Feed polarity: Reverse</b>		-
-32.00 dBV	19.09 dBPa/V	-
-12.00 dBV	20.69 dBPa/V	-



<b>Test specification:</b>	<b>4.2.6.1 Sending Noise</b>		
<b>Test purpose:</b>	The sending noise shall be not greater than -66 dBVp when the feed resistance is set to 500 Ohm, -64 dBVp when the feed resistance is set to 1000 Ohm, and -60 dBVp when the feed resistance is set to 2800 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/29/2008 15:54:29		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

### Measurement uncertainty

Expanded Uncertainty, k=2 (95% confidence) Sending noise in ranges:

<50 Hz - 200 Hz SPL =  $\pm 2.85$  dB

<200 Hz - 3000 Hz SPL =  $\pm 1.85$  dB

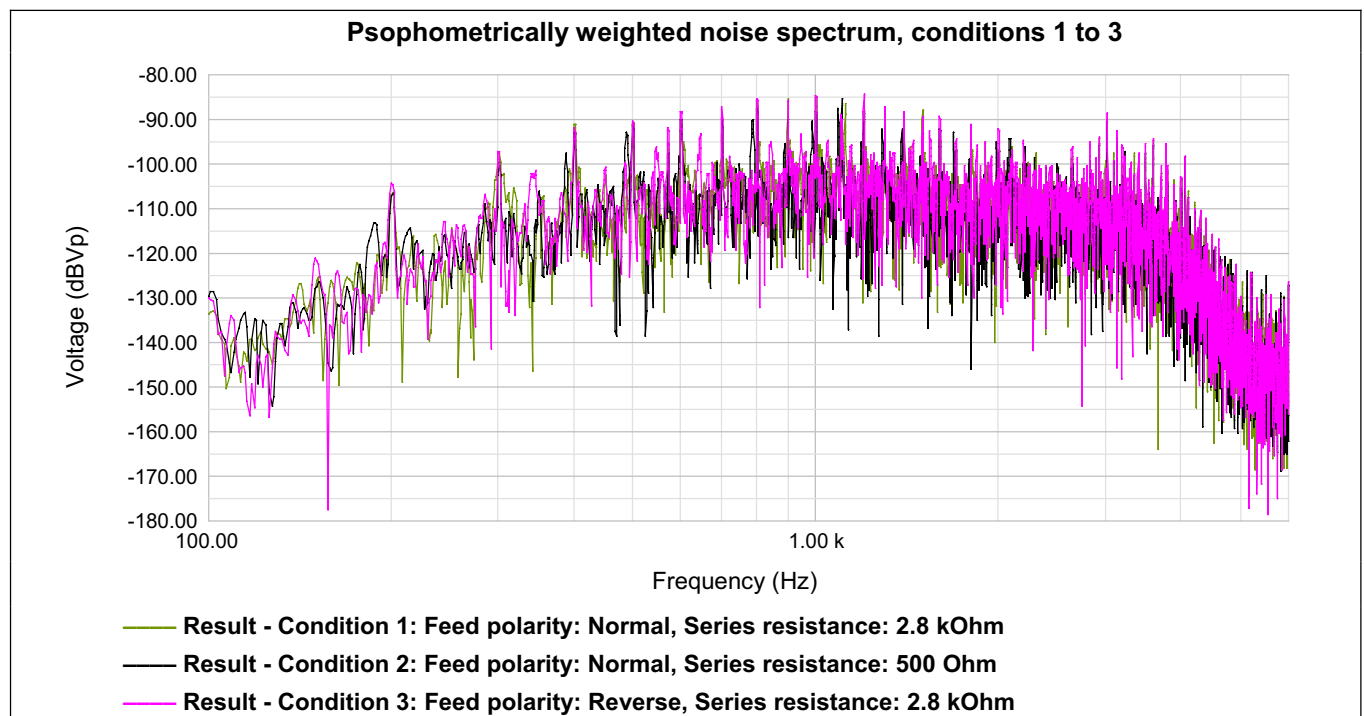
<3000 Hz - 3500 Hz SPL =  $\pm 2.85$  dB

<3500 Hz - 6000 Hz SPL =  $\pm 3.85$  dB

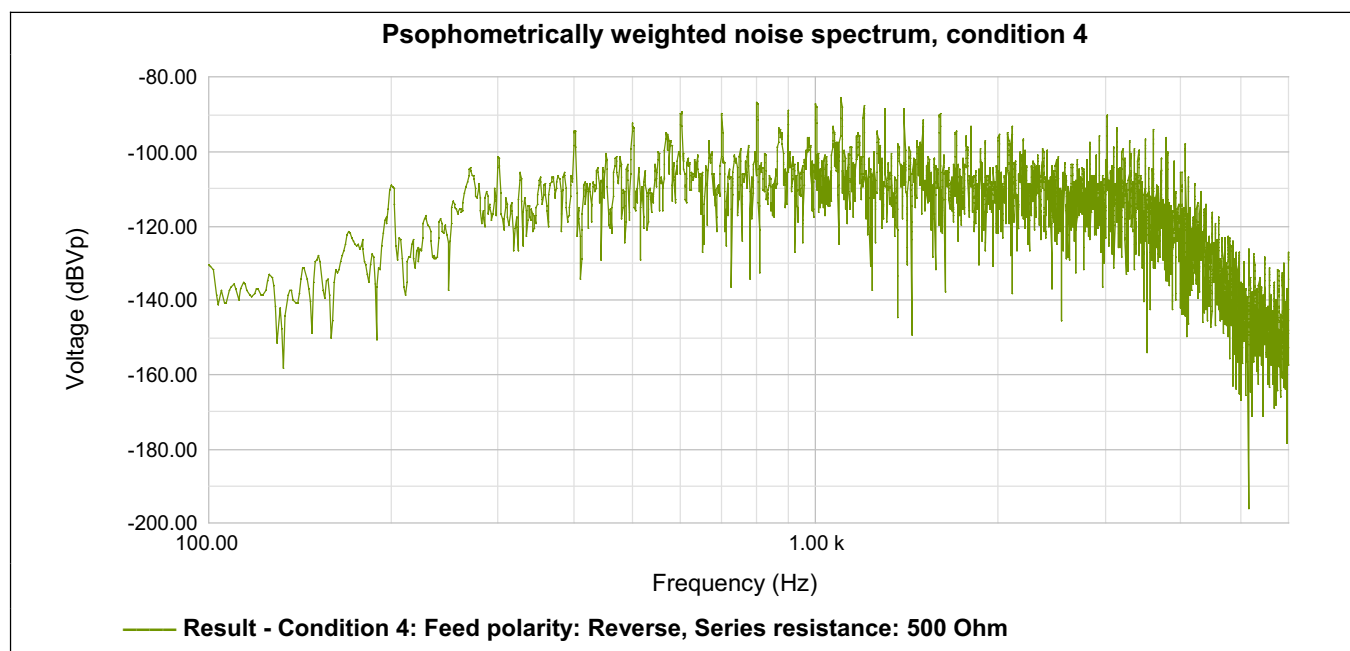
### General parameters

Parameter	Value
Termination	600 Ohm VF
Feed voltage	50 V
No. of acquisitions	3
Acquisition time	1s
Overall meas. time	30 s

<b>Test specification:</b>	<b>4.2.6.1 Sending Noise</b>		
<b>Test purpose:</b>	The sending noise shall be not greater than -66 dBVp when the feed resistance is set to 500 Ohm, -64 dBVp when the feed resistance is set to 1000 Ohm, and -60 dBVp when the feed resistance is set to 2800 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/29/2008 15:54:29		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			



<b>Test specification:</b>	<b>4.2.6.1 Sending Noise</b>		
<b>Test purpose:</b>	The sending noise shall be not greater than -66 dBVp when the feed resistance is set to 500 Ohm, -64 dBVp when the feed resistance is set to 1000 Ohm, and -60 dBVp when the feed resistance is set to 2800 Ohm.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/29/2008 15:54:29		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			



#### Max sending noise

Level	Limit	Verdict
<b>Condition 1: Feed polarity: Normal, Series resistance: 2.8 kOhm</b>		<b>Pass</b>
-73.49 dBVp	-60 dBVp	Pass
<b>Condition 2: Feed polarity: Normal, Series resistance: 500 Ohm</b>		<b>Pass</b>
-73.55 dBVp	-66 dBVp	Pass
<b>Condition 3: Feed polarity: Reverse, Series resistance: 2.8 kOhm</b>		<b>Pass</b>
-71.98 dBVp	-60 dBVp	Pass
<b>Condition 4: Feed polarity: Reverse, Series resistance: 500 Ohm</b>		<b>Pass</b>
-72.89 dBVp	-66 dBVp	Pass

<b>Test specification:</b>	<b>4.2.6.2 Receiving Noise</b>		
<b>Test purpose:</b>	The A-weighted noise produced by the apparatus in the receiving direction shall be not greater than -49 dBPa(A)		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 19:21:49		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

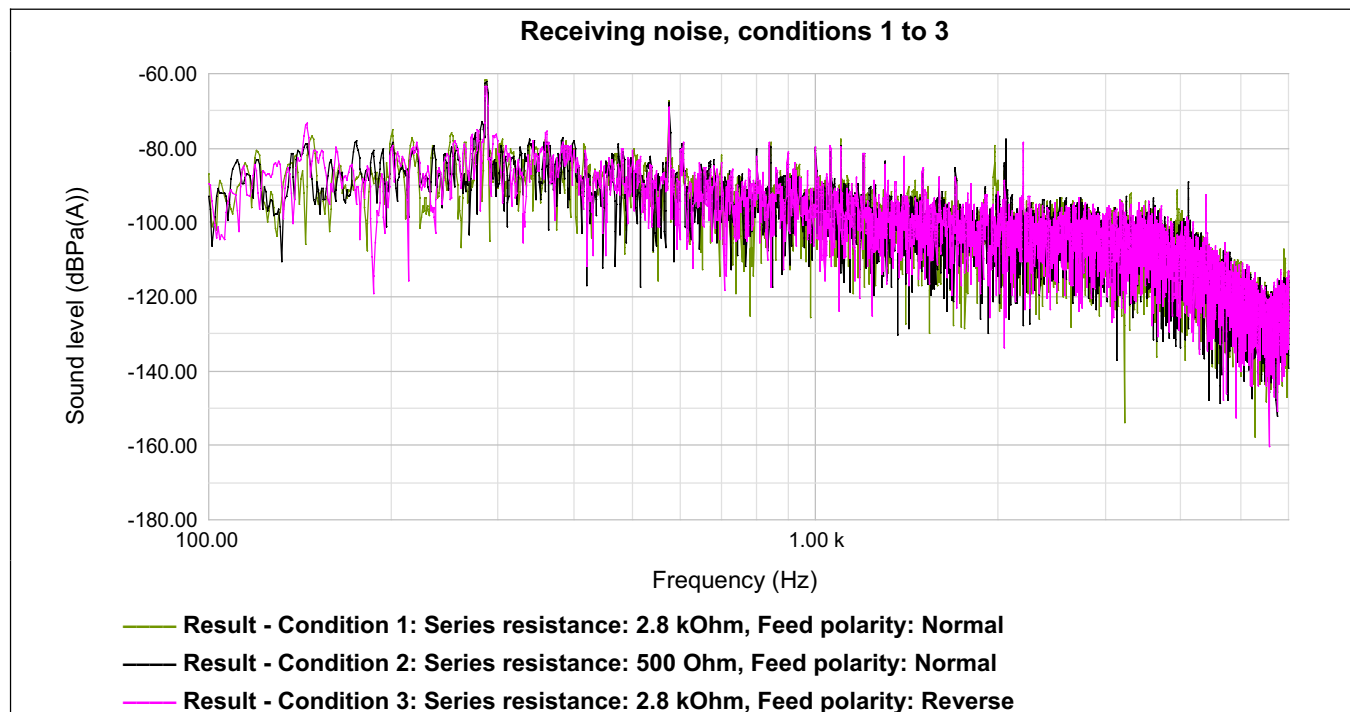
### Measurement uncertainty

Expanded Uncertainty, k=2 (95% confidence):

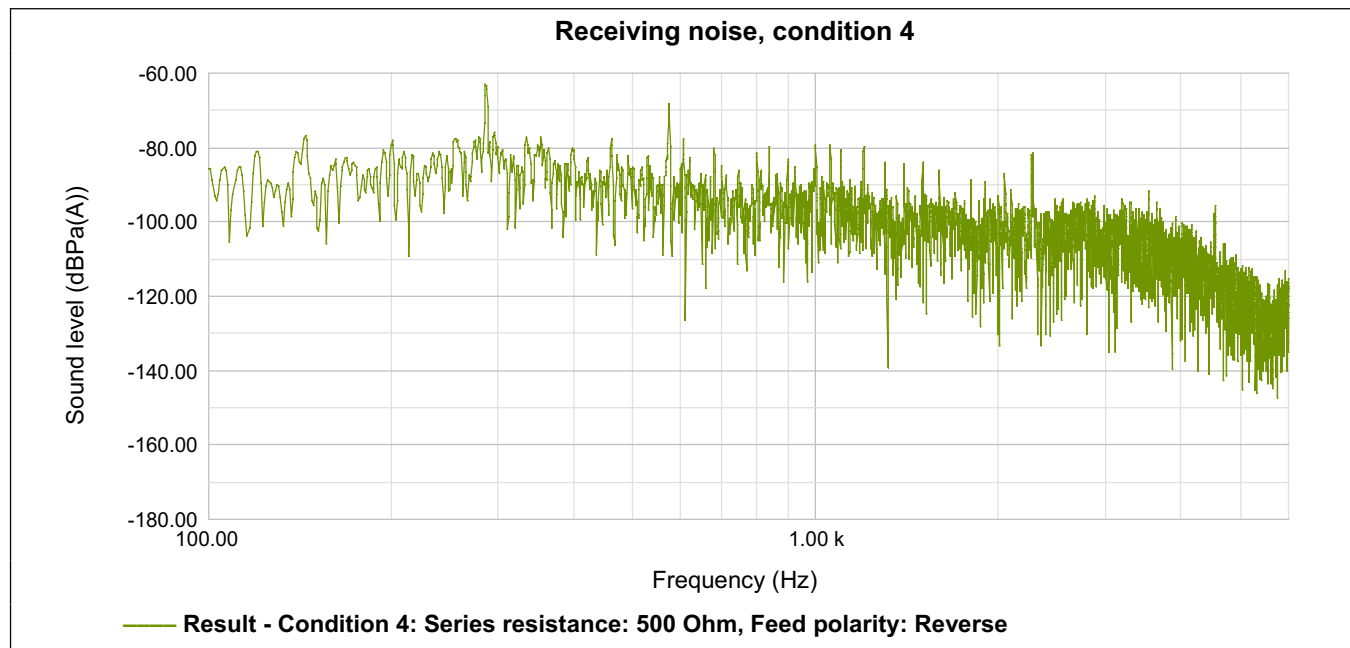
SPL =  $\pm 0.23$  dB

### General parameters

Parameter	Value
Feed voltage	50 V
Termination	600 Ohm VF
Acquisition time	1s
No. of acquisitions	3
Overall meas. time	30 s



<b>Test specification:</b>	<b>4.2.6.2 Receiving Noise</b>		
<b>Test purpose:</b>	The A-weighted noise produced by the apparatus in the receiving direction shall be not greater than -49 dBPa(A)		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 19:21:49		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			



#### Max receiving noise

Sound level	Limit	Verdict
<b>Condition 1: Series resistance: 2.8 kOhm, Feed polarity: Normal</b>		<b>Pass</b>
-56.90 dBPa(A)	-49 dBPa(A)	Pass
<b>Condition 2: Series resistance: 500 Ohm, Feed polarity: Normal</b>		<b>Pass</b>
-57.09 dBPa(A)	-49 dBPa(A)	Pass
<b>Condition 3: Series resistance: 2.8 kOhm, Feed polarity: Reverse</b>		<b>Pass</b>
-57.48 dBPa(A)	-49 dBPa(A)	Pass
<b>Condition 4: Series resistance: 500 Ohm, Feed polarity: Reverse</b>		<b>Pass</b>
-57.89 dBPa(A)	-49 dBPa(A)	Pass

<b>Test specification:</b>	<b>4.2.7 Instability</b>		
<b>Test purpose:</b>	Instability (sustained audible oscillations), shall not be induced when the volume control is set to give maximum receiving gain.		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/24/2008 18:50:52		
<b>Temperature:</b> 23degree C	<b>Air Pressure:</b> 101.2kPa	<b>Relative Humidity:</b> 50%	<b>Mains Power Supply:</b> 230V
<b>Remarks:</b>			

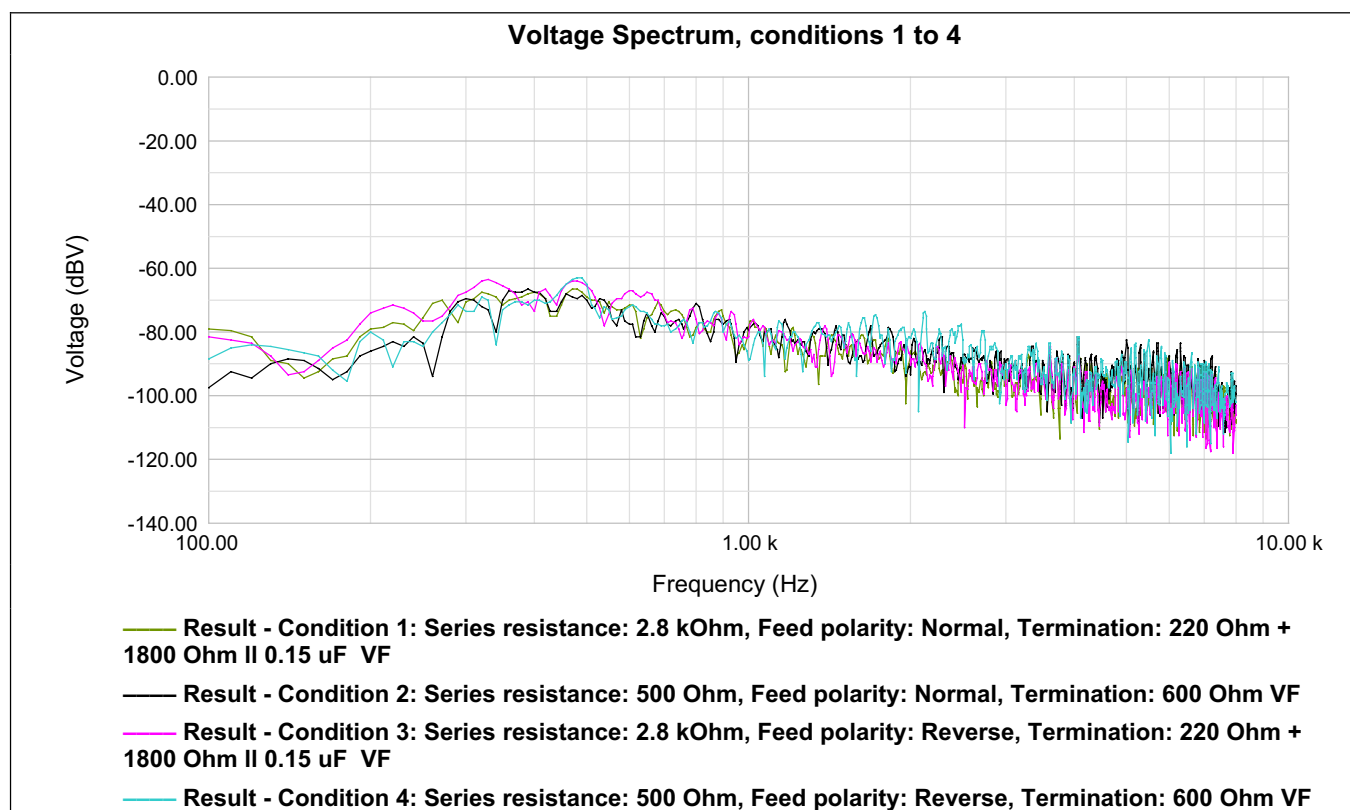
### Measurement uncertainty

Expanded Uncertainty, k=2 (95% confidence):

SPL =  $\pm 0.23$  dB

### General parameters

Parameter	Value
Feed voltage	50 V
Artificial network	None
Overall meas. time	10 s





Test specification:	4.2.7 Instability		
Test purpose:	Instability (sustained audible oscillations), shall not be induced when the volume control is set to give maximum receiving gain.		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	4/24/2008 18:50:52		
Temperature: 23degree C	Air Pressure: 101.2kPa	Relative Humidity: 50%	Mains Power Supply: 230V
Remarks:			

#### Instability

Peak voltage	Limit	Verdict
Condition 1: Series resistance: 2.8 kOhm, Feed polarity: Normal, Termination: 220 Ohm + 1800 Ohm II 0.15 uF VF		Pass
-66.55 dBV	-40 dBV	Pass
Condition 2: Series resistance: 500 Ohm, Feed polarity: Normal, Termination: 600 Ohm VF		Pass
-62.33 dBV	-40 dBV	Pass
Condition 3: Series resistance: 2.8 kOhm, Feed polarity: Reverse, Termination: 220 Ohm + 1800 Ohm II 0.15 uF VF		Pass
-60.33 dBV	-40 dBV	Pass
Condition 4: Series resistance: 500 Ohm, Feed polarity: Reverse, Termination: 600 Ohm VF		Pass
-65.63 dBV	-40 dBV	Pass

#### Instability peak frequency

Frequency	Verdict
Condition 1: Series resistance: 2.8 kOhm, Feed polarity: Normal, Termination: 220 Ohm + 1800 Ohm II 0.15 uF VF	-
330.00 Hz	-
Condition 2: Series resistance: 500 Ohm, Feed polarity: Normal, Termination: 600 Ohm VF	-
440.00 Hz	-
Condition 3: Series resistance: 2.8 kOhm, Feed polarity: Reverse, Termination: 220 Ohm + 1800 Ohm II 0.15 uF VF	-
410.00 Hz	-
Condition 4: Series resistance: 500 Ohm, Feed polarity: Reverse, Termination: 600 Ohm VF	-
450.00 Hz	-



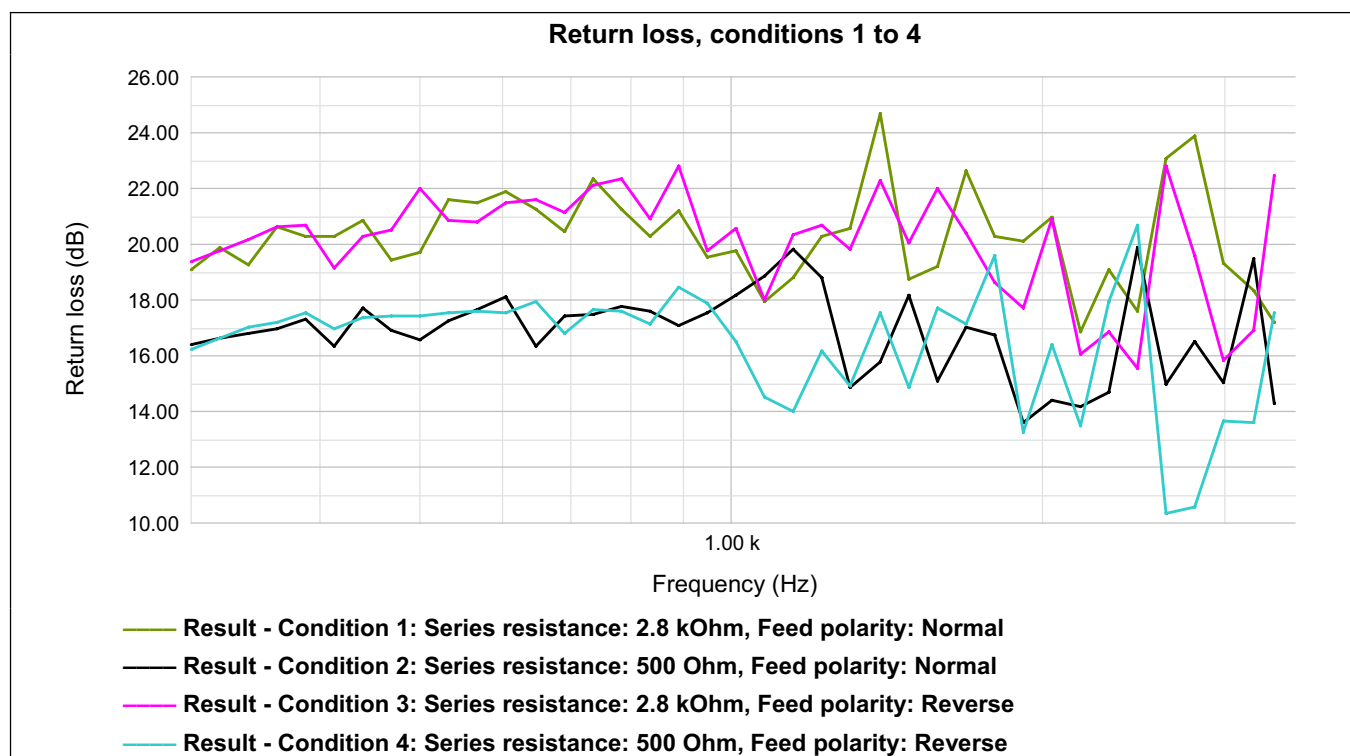
<b>Test specification:</b>	<b>4.2.8 Echo Return Loss</b>		
<b>Test purpose:</b>	The Echo Return Loss (ERL) shall be not less than 14 dB with respect to the reference impedance		
<b>Test mode:</b>	Compliance	<b>Verdict:</b>	<b>PASS</b>
<b>Date &amp; Time:</b>	4/30/2008 16:56:26		
<b>Temperature:</b>	<b>Air Pressure:</b>	<b>Relative Humidity:</b>	<b>Mains Power Supply:</b>
<b>Remarks:</b>			

### Measurement uncertainty

Expanded Uncertainty, k=2 (95% confidence) =  $\pm 0.49$  dB

### General parameters

Parameter	Value
Termination	270 Ohm + 750 Ohm    0.15 uF VF
Feed voltage	50 V
Gen. level	-18.00 dBV



### Echo return loss

Echo return loss	Limit	Verdict
<b>Condition 1: Series resistance: 2.8 kOhm, Feed polarity: Normal</b>		<b>Pass</b>
20.06 dB	14 dB	Pass
<b>Condition 2: Series resistance: 500 Ohm, Feed polarity: Normal</b>		<b>Pass</b>
16.62 dB	14 dB	Pass



Test specification:	4.2.8 Echo Return Loss		
Test purpose:	The Echo Return Loss (ERL) shall be not less than 14 dB with respect to the reference impedance		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	4/30/2008 16:56:26		
Temperature:	Air Pressure:	Relative Humidity:	Mains Power Supply:
Remarks:			

Echo return loss	Limit	Verdict
Condition 3: Series resistance: 2.8 kOhm, Feed polarity: Reverse		Pass
19.65 dB	14 dB	Pass
Condition 4: Series resistance: 500 Ohm, Feed polarity: Reverse		Pass
15.80 dB	14 dB	Pass